

THE IRON AGE

THURSDAY, AUGUST 15, 1901.

Machinery at the Pan-American Exposition.—IV.

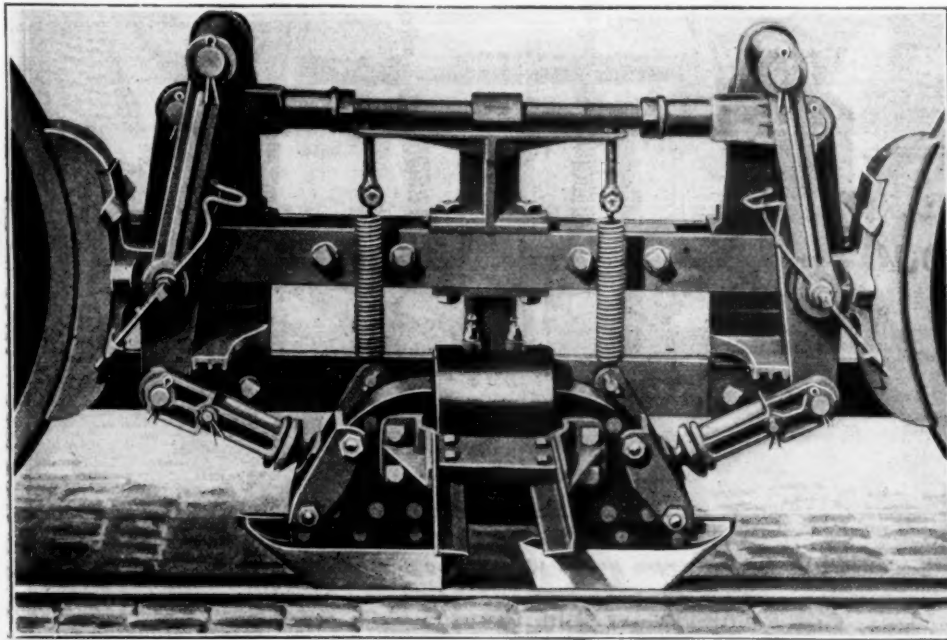
Westinghouse Air Brake Company.

While this apparatus is, in reality, composed of two parts, the power brake and car heating apparatus, we have confined our article, except in the case of the wiring, which is self explanatory, to the brake proper. The apparatus consists of two elements, a brake and a car heater. The brake may be installed and used independently of the heater, but the operation of the heater is dependent upon the use of the brake, the produced heat being derived from energy that would otherwise be wasted. This combination of a magnetic track brake with a wheel brake of maximum power produces a braking effect greatly in excess of any heretofore at-

slightest effect up to a braking effect exceeding the weight of the equipment.

The brake proper comprises a double track shoe of peculiar construction, combined with a powerful electro magnet which, when energized by current produced by the car motors acting as generators, is strongly attracted to the rail by magnetic force. The brake heads and shoes are of the ordinary type, acting directly on the wheels and constituting a wheel brake powerful and efficient. There are also sundry castings and forgings for simultaneously transmitting the downward pull and resultant drag of the magnetic track brake into lateral pressure upon the wheels.

The combination of these three elements in duplicate, together with the necessary tie rods and attachments, constitutes a single truck brake equipment designed for application to a four-wheel or single-truck car.



View of Brake from Under the Car.

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tained. Moreover, cars equipped with the complete apparatus are heated without using the line current and therefore without cost for the electrical energy employed in heating.

This system is shown in operation in two exhibits. First: A standard single truck electric car is in constant service on a track extending from the main exhibit in the Railway Exhibits Building to a point east of the building some 250 feet. This car is equipped with the electric brake and car heater complete, and is in charge of a regular street car motorman, who is in readiness at any time to demonstrate the operation of the system to those interested. When in action powerful magnets force the brake friction shoes upon the rails and set up a strong magnetic attraction between the shoes and the rails, while at the same time the drag or back action of these magnet shoes throws in action a system of levers that apply to the wheels brake shoes of the regular type. The current for exciting the magnets is supplied by the motor, which through the proper wiring of the controllers is at this time operated as a generator. With this electric brake system it is impossible to skid the wheels and any degree of braking power is secured from the

A double truck equipment, being the equivalent of two single truck equipments, as above described, is required for an eight-wheel or double-truck car.

In addition to the truck equipment, either single or double, as circumstances may require, a complete brake includes brake controller attachments for use when the motor controllers are not provided with braking points, and a diverter, or improved form of rheostat, for dissipating the heat generated by any excess of current over and above that required to operate the brake when the heaters are not in service.

Fig. 2, in which a portion of the truck frame is shown as transparent, so as to afford a clearer view of the mechanism connecting the truck and wheel brake, illustrates the general arrangement and substantial construction of the apparatus; also the method of attaching the brake rigging to the truck, and of suspending the track shoes and magnet frames directly over the track. When the brake is not in operation the suspension springs carry the track magnets and shoes entirely clear of the rails and by means of their flexibility permit the shoes to ride over or clear any obstruction not sufficient to cause the car to be stopped; when the brake is applied, through

the saturation of the magnets with current supplied by the car motors acting as generators, the track shoes are strongly attracted to the rails, producing three distinct effects: 1. A noticeable increase in the pressure of the wheels on the track, because of the downward pull of the magnets; 2, a pronounced retardation by reason of the friction generated between the track shoes and rails; 3, a maximum braking effect on the wheels, obtained through the transmission of the resultant drag of the track shoes to the brake shoes by means of the mechanism provided for that purpose.

It is obvious that the net result of these three effects combined represents a much higher braking power than can be obtained by the use of any other brake without skidding wheels.

In this connection it should be noted that while the thrust against the wheel brake shoes, caused by the drag or frictional resistance between the track shoe and the rail, is similar in its effect to the thrust from the expansive force of compressed air acting upon the brake cylinder piston in the well-known air brake, the magnetic brake has a decided advantage over the older type

An additional advantage gained by the use of the magnetic brake is found by employing the improved form of rheostat, or diverter, previously mentioned (which has a constant resistance regardless of the heating produced by a continuous flow of current), in the automatic control of speed down long and steep grades. This result is owing to the fact that a certain resistance in the rheostat insures a fixed current flow at a given speed; and this resistance can be readily adjusted so as to permit just enough current to pass through the track shoe magnets to hold the car at the required speed against the action of gravity on any grade. Any increase in speed increases the current and causes the brakes to act with greater force, while a decrease in speed instantly decreases the current and the brake action at the same time, so that the speed of a car may be automatically regulated within narrow limits regardless of changes in the gradient.

The Directory of the Iron and Steel Industry.—The American Iron and Steel Association makes the following announcement: "The fifteenth edition of our Di-

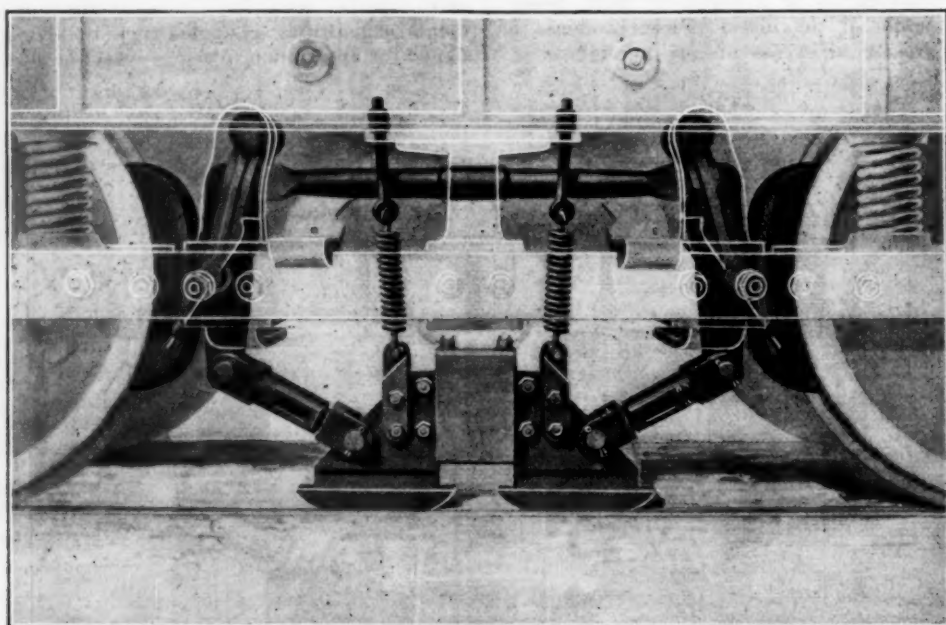


Fig. 2.—View Showing Method of Attaching Brake to Car Frame and Trucks.

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in this particular—viz., that the brake shoe pressure is automatically regulated by the condition of the rail surface. This is a fortunate feature, which results in securing the highest braking power at all times without danger of wheel sliding. For example, if the rail be dry and sandy the drag of the track shoes and the consequent thrust upon the levers applying the brakes to the wheels are great; if the rail be wet or greasy the drag of the track shoes is lessened in inverse proportion to the frictional resistance between them and the rail, thus automatically decreasing the corresponding brake shoe pressure on the wheels.

There is still another automatic adjustment of braking effect, scarcely less interesting, if somewhat less important. It is well known that when the motion of the car is being rapidly retarded the forward wheels carry a somewhat greater proportion of the weight resting upon the truck. From this it follows that by placing the fixed lower fulcrum of the forward brake shoe lever slightly above the pin connecting it with the telescope rod, as shown in Fig. 2, a brake shoe pressure is applied to the forward wheels proportionately greater than that acting upon the rear wheels. When the car is reversed the governing conditions are also reversed and entirely satisfactory results attained, the levers and connections being so designed that when properly adjusted the highest possible braking power is secured without reference to the direction in which the car moves.

rectory to the iron and steel works of the United States, Canada and Mexico is now so far advanced toward completion that we feel justified in advising our friends who have been anxiously looking for its appearance that a large part of the book will soon be printed. More than one-half of the descriptive matter for the whole book has long been in type, but we have been prevented from printing this much of it by the necessity of conforming our statements to the changes in equipment, management, and even ownership of plants that have been almost daily announced in the newspapers, and which we hope are now for the time being at an end. It must be frankly added, however, that many more weeks must elapse before the whole Directory can be printed. The proof of every line must be carefully read and its correctness verified. When the Directory is ready for our members and the iron trade generally due announcement of that fact will be made."

The British Iron Trade Association has decided to send a commission of experts to the United States during the coming fall months to investigate and report upon the progress that has been made in our country in the manufacture of iron and steel. It is intended that the commission shall leave England on September 25. It will consist, in part at least, of Mr. Parks, M.P., managing director of the Atlas Works and president of the

British Iron Trade Association; J. Stephen Jeans, secretary of the association, who is well known in this country, and Axel Sahlin, manager of the blast furnaces of the Millom & Askam Hematite Iron Company, Limited, at Millom, Cumberland, who is also well known in this country, having been prominently connected with our pig iron industry for many years. To Mr. Sahlin has been confided the task of studying and reporting upon our blast furnace practice and kindred problems.

The Machine in Coal Mining.

WASHINGTON, August 13, 1901.—An interesting chapter in the forthcoming annual report of the United States Geological Survey upon the production of coal in 1900, which is being prepared by E. W. Parker and a brief extract of which was published in *The Iron Age* some time ago, will be devoted to remarkable advances that have been made in the mining of coal by machinery.

The production of coal in the United States for the first time exceeded the output of Great Britain in 1899, but in 1900 the lead over Great Britain was almost exactly doubled. The total product, including colliery consumption, in 1900 amounted to 269,064,281 short tons as compared with 253,739,992 tons in 1899. Of this enormous output 52,790,523 tons, or 25.25 per cent. of the total

with the exception of Illinois, compiled from the reports of the operators to the Geological Survey. They show that in 1900 there were 323 firms or corporations in the United States using mining machines, as against 308 in 1899, 280 in 1898, and 208 in 1897. The number of machines actually in use in each year was 1956 in 1897, 2622 in 1898, 3125 in 1899 and 3907 in 1900. The total amount of coal mined by machines in 1900 was 42,790,523 short tons as compared with 43,963,933 short tons in 1899 and 32,413,144 short tons in 1898. An apparent decrease is shown in the number of firms using mining machines in the State of Pennsylvania. This is due to the consolidation effected by the Pittsburgh Coal Company and the Monongahela River Consolidated Coal & Coke Company, the companies representing them being reported separately in 1899.

In collecting the statistics for 1899 and 1900 the inquiries were made to cover the kinds of machines in use as well as the number. The returns to these inquiries showed that in 1900 there were 2350 machines of the pick or punch type in use as compared with 1907 in 1899. Of the chain breast machines in use there were 1507 in 1900 and 1106 in 1899. The number of long wall machines reported in 1900 was 48 as compared with 22 in 1899.

A notable feature in connection with the coal mining

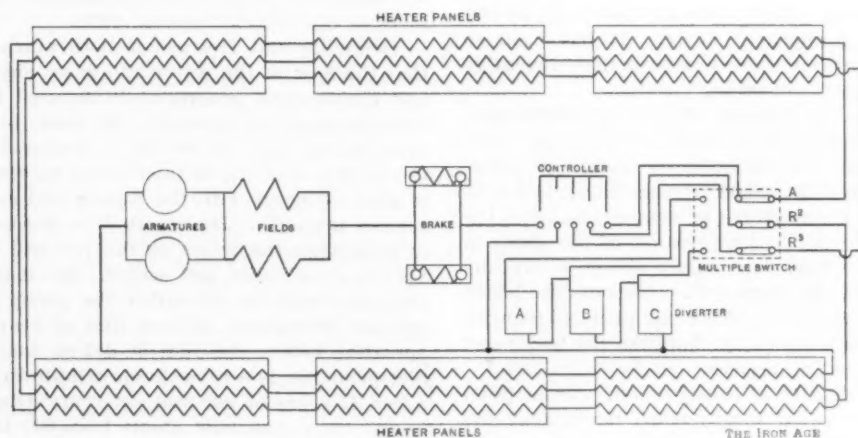


Fig. 3.—Diagram of Wiring.

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bituminous product, was undercut by machines, so that while the bituminous output in 1900 increased a little less than 9 per cent. the machine product increased over 20 per cent.

The progress made in the last few years in the development of the use of undercut machines in the United States has attracted more attention than any other single feature in connection with the coal mining industry. So rapid has been the increase in the production of bituminous coal in the United States that the governments of several of the leading European countries have considered it advisable to send representatives to this country to study the various methods employed.

One of the interesting features in connection with the use of mining machines in 1900 was the fight made against their continued use in the mines of Illinois by the Mine Workers' Union. The opposition of the Mine Workers' Union was manifested in the adoption of the wage scale in the spring of the year, when the rate to be paid for the machine mined coal was placed at so high a figure that in many cases the operators were unable to derive any benefit from the use of the machines. The effects of the restrictions thus placed upon the use of mining machines in Illinois show in the statistics for that State, which were obtained from the report of the State Bureau of Labor Statistics. They show that while there was an increase of six in the number of firms using machines in the State, there was a decrease of ten in the number of machines in use and of over 1,000,000 tons in the machine mined product. The statistics as presented in the subsequent tables have been,

industry of the United States in 1900 was the comparatively large increase in the value of the product, which was principally noticeable in the production of bituminous coal. The total increase in product was 15,324,289 short tons, or 6 per cent., while the value increased \$49,986,680, or 19.5 per cent. This increase in value in 1900 was nearly \$2,000,000 more than the increase in value from 1898 to 1899, when the product increased 33,765,325 tons, or more than double the increase of 1900 over 1899. There were only three States in which the average price per ton realized in 1900 was less than that obtained in 1899. These were Arkansas, New Mexico and Utah, all of which had a largely increased production in 1900. Arkansas output in 1900 was 75 per cent. more than in 1899, the production in 1899 being greatly reduced by reason of labor troubles, which affected the Arkansas and Indian Territory region in that year. The scarcity of fuel caused by the strike is responsible for advanced prices in 1899, and the decline in the prices in 1900 for Arkansas is not surprising.

W. L. C.

The National Rolling Mill Company.—We are advised that the new mill of the National Rolling Mill Company of Hartford City, Ind., will be in full operation by September 1. The muck department should be ready before that time. The mill, which has a 10-inch and an 18-inch train, will produce steel and iron bars. E. B. Mitchell is president; J. H. Jones, secretary and treasurer; S. W. Bradshaw, general manager, and H. R. Phillips, superintendent.

On the Science of Steam Making.*

BY JOHN C. PARKER.

In a historical sketch of the steam engine by Rankine occurs this passage: "In the history of mechanical art two modes of progress may be distinguished—the empirical and the scientific; not the practical and the theoretic, for that distinction is fallacious; all real progress in mechanical art, whether theoretical or not, must be practical. The true distinction is this: That the empirical mode of progress is purely and simply practical; the scientific mode of progress is at once practical and theoretic. . . . Up to the period when Smeaton perfected the atmospheric engine, the progress of the 'fire-engine,' as the steam engine was then called, had been merely empirical; and in everything that depended on principle the steam engine of that period was a most rude, wasteful and inefficient machine."

The wastefulness of the steam engine was the prime cause of its scientific development, whereas the boiler presented no such economic problems. The comparatively high economic performance of the boiler under adverse conditions has retarded scientific development, and its progress has been entirely empirical.

To make the steam engine operative certain well defined principles must be followed. It is not so with the boiler; any kind of an apparatus, no matter how oddly it may be constructed, will produce steam nearly as efficiently as the most approved design. It has been so easy to make steam that there has been little incentive toward scientific treatment of the problem.

The physical conditions involved in the scientific generation of steam can be graphically shown by a diagram, Fig. 1. The vertical scale represents temperatures above 0 degrees F., 2500 degrees F. is taken to indicate the initial temperature of combustion, and the curve illustrates the fall in temperature of the gases in their passage to the flue, where they escape at 600 degrees F. The line at 362 degrees F. represents the boiler temperature due to the pressure (in this case 143 pounds) and the difference in temperature between the boiler and the flue gases is thus 238 degrees.

Since, owing to rigidity of construction, present practice aims to secure equal temperature throughout the boiler, the line at 362 degrees will be straight, and, since there can be no conduction of heat from a lower to a higher temperature, it would be impossible to reduce the temperature of the gases below 362 degrees.

But suppose we are not tied down to a rigid structure, and are free to have the different parts of the apparatus at different temperatures without affecting each other. We will cause the feed water to flow in the opposite direction to the gases. If the feed comes from a heater at 212 degrees F., that end of the evaporation line will be inclined (slightly curved) from the starting point at 212 degrees F., until 362 degrees is reached, when it will be horizontal to the point at which superheating begins, where it will again be inclined, but very much more toward the vertical, both on account of the low specific heat of steam and the great difference in temperature.

With the same difference in temperature between the flue gases and the water as before (238 degrees), the flue temperature would be reduced to 450 degrees, which amounts to a saving of 12.4 per cent. If the feed water happened to be at 62 degrees, the flue temperature would be reduced to 300 degrees (with the same difference), which would mean a saving of 23.39 per cent. In this case the temperature of the gases is lower than the temperature of the steam, and this illustrates how heat may be transmitted from a lower to a higher temperature by convection. It will be observed that superheat could not be added under these conditions at the cool end, but it might be very easily at the other end, with the result of increasing the initial temperature of combustion, and so adding to the economy at both ends. If the water came in at the hot end of the diagram the rise in temperature would be more rapid, as indicated by the dotted line, but the initial temperature of combustion would be lowered, as shown.

It must be evident that to secure the maximum trans-

mission of heat from the gases to the water they must flow in opposite directions, and evaporation must be completed in a single circuit. If any water is re-circulated after being raised to the boiling point, it must necessarily reduce the economy by raising the feed temperature and so reducing its capacity for absorbing the heat of the gases; furthermore, superheating would be impossible and the initial temperature of combustion would be lowered.

It is also plain that, while the transmission of heat is as the square of the difference in temperature, the difference will not be maintained except in proportion to the rapidity of the flow, which must be impelled by a constant force. The diagram demonstrates that the functions of the economizer, the boiler, and the superheater are but separated parts of a single progressive operation which can be more perfectly accomplished in one apparatus.

This is in effect an application of the regenerative process first applied to the air engine about the year 1816 by the Rev. Dr. Stirling, and subsequently improved and modified by James Stirling, Captain Ericsson, Mr. Siemens, and others. Attempts were made to apply it to steam generating in France by Belleville in 1856, and in America by Herreshoff about 1878. Mr. Yarrow has made an application of it to his type of boiler quite recently, and he presented an excellent paper on the subject before the British Institute of Naval Architects at the March meeting, 1898.

Belleville and Herreshoff both started on the basis that the flow of the water and gases should be opposite, and evaporation progressively secured in a coil. Both used a pump to maintain the flow, and to that fact their failure may be ascribed. Belleville assumed that the trouble was due to there being no water in the tubes in direct contact with the flames, and so abandoned his correct principle. He resorted to the common practice of supplying the water to the hot end of the coil, but his troubles were not ended. He made no material progress until he discarded the pump and adopted a gravity circulation. It took him 23 years to develop an operative boiler, and that he did so finally, on an incorrect principle, is a remarkable tribute to his personality. After 22 years of use and six years' trial in the British navy, which has now about 1,000,000 horse-power, the Belleville boiler has just been condemned by a Parliamentary commission, composed of the most experienced engineers in all Great Britain. We now have the spectacle of the best engineering talent in the British Empire making a series of exhaustive tests of the most tried boilers to take the place of the Belleville.

If we draw any significance from this, it means that 20 years, or any number of years' use, will not make a good boiler of a bad one. It means that none of the boilers come up to requirements, and that there is very little difference between them. It means that, so far as the boiler question is concerned, they are further at sea than any of their ships, else why should they proceed to test boilers which have been in use a great many years, and the qualities of which are as well known as the Belleville? The fact is that after two centuries of empirical progress we find ourselves at the opening of the twentieth century with the steam generating problem still before us. The "boiler question" has been peculiarly acute during the past decade, particularly in Great Britain, and it would seem as if important results were to be expected, in view of the amount of attention which is being given to the subject.

So far as principle goes, we are making steam to-day by the same process adopted by Hero of Alexandria 2000 years ago—i. e., we boil water in large quantities and draw off the steam from the same chamber—both very improper practices. We may have stuck some flues through the water chamber to increase the heating surface, or perhaps we have divided up the water space into a mess of tubes, but so far as principle goes, Hero was not one whit behind us in the art of steam making.

While pressures were low the boiler was reasonably satisfactory; but when the pressure rose above the atmosphere, a new condition was introduced: the pressure was no longer constant and explosions began to be known. As weakness developed it was met at the visible point.

* Paper read before the Engineers' Club of Philadelphia.

and a stay was inserted, a tube beaded over, or a furnace corrugated. Safety became the fundamental idea in boiler design to the exclusion of correct principles, with the result that neither has been attained. The comparative safety of the boiler to-day is more of a tribute to the steel maker than to the designer.

Only one important conclusion has been reached in the steam making problem in a century of remarkable scientific progress in other directions. The idea has become almost universal that a free circulation of the water is essential to the safe generation of steam, and that idea is absolutely incorrect. The primordial condition for the safe generation of steam is a constant flow of the water and steam in one direction. This condition has never been fulfilled. The constancy of the flow is affected in two ways: By forcing the fire until the water is driven in the wrong direction, and by the lifting effect due to falling pressures, which produces a like result. While the lifting effect due to falling pressures has been well known, the extent of its influence on the motion of the water and steam has never been fully appreciated; in

of the furnace to the steam reservoir without passing through water.

5. The steam supply must be separated from the water so that priming, foaming or lifting will be impossible.

6. There must be sufficient steam and water room to prevent excessive fluctuations in pressure and water level.

7. The internal surface must be kept clean automatically and the external surface must be perfectly accessible.

8. There must be no fluctuations in the temperature of the metal: feed water on hot surfaces must be made impossible.

9. There must be perfect flexibility to permit independent expansion of each part.

10. The apparatus must be simple, with fewest and best joints, and arranged to permit ready access to every part.

11. The apparatus must be absolutely reliable in operation under adverse conditions, with ordinary care.

12. The apparatus must be durable, without frequent repairs, and with freedom from leaks.

The essential elements of a steam making apparatus designed to fulfill the foregoing conditions are shown in the evaporation diagram, Fig. 2. There is a dry steam chamber, a water chamber beneath it, a tubular passage

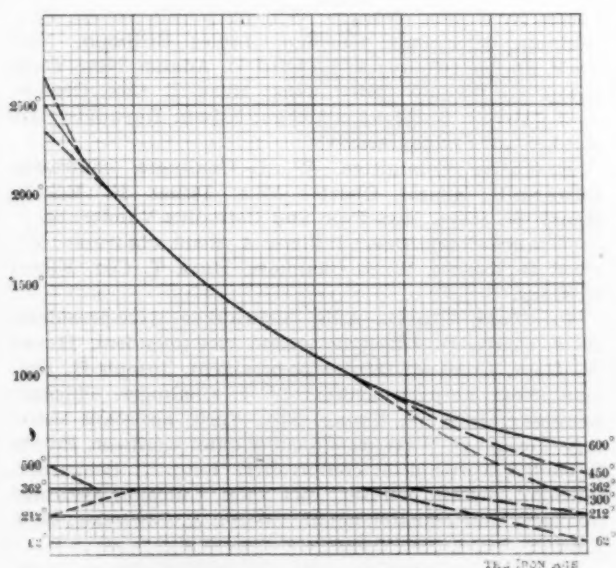


Fig. 1.—Heat Diagram.

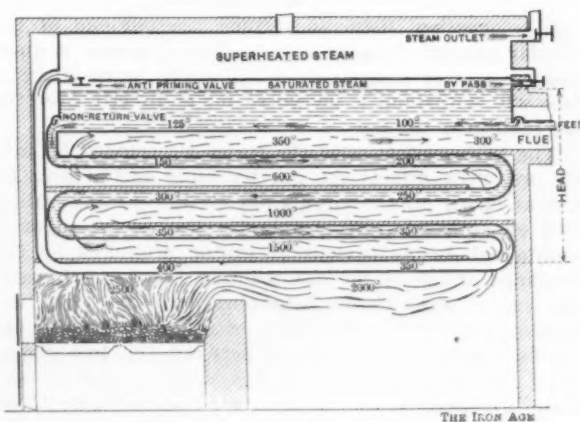


Fig. 2.—Evaporation Diagram.

ON THE SCIENCE OF STEAM MAKING.

fact, most of the troubles connected with steam making can be traced directly to this cause.

It is a well seated belief among engineers that water must be in continual contact with the surfaces exposed to the radiant heat to prevent damage; but how water is to be in continual contact with a square foot of surface which is evaporating enough water to entirely cover it with a layer of steam from $\frac{1}{8}$ inch to $\frac{1}{4}$ inch thick once every second has not been explained. Water will not prevent overheating without motion, while steam is most efficient in carrying off the heat if in rapid and constant motion in one direction. Rankine states that the most rapid convection of heat is that which is effected by means of a cloudy vapor, which combines the mobility of a gas with the comparatively greater conducting power of a liquid.

The principal conditions involved in the evolution of a satisfactory steam generating apparatus may be stated as follows:

Requisites.

In a perfect steam generator—

1. The water and gases must flow in opposite directions to secure the maximum transmission of heat.
2. The flow must be constant and at maximum speed to obtain the highest efficiency of the surface and prevent overheating.
3. There must be no circulation of the water; evaporation must be secured in one circuit.
4. The steam must flow directly from the hottest part

extending downward from the water chamber, the lower end of which is connected to the dry steam chamber by a direct upcast passage. An opening between the chambers, controlled by a non-return valve, completes the circuit and equalizes the pressure throughout the apparatus. The valve prevents "lifting" due to falling pressures, and a bypass from the steam space of the water chamber to the dry steam chamber prevents excessive difference in pressure during such periods. A nonreturn valve at the induction end of the tubular passage prevents reversal of the flow.

In operation the water is fed into the lower chamber, whence it flows into the tubular passage and seeks its level in the upcast. When heat is applied, the water is soon driven out of the upcast by the expansion of steam. The result is a column of water against a column of steam, with a constant effort on the part of the water to regain its level in the upcast, which is frustrated by continuous evaporation.

It is a common idea that the "buoyancy" of the steam will prevent the downflow in the passage by its tendency to rise and carry the water with it. We know that gravity affects all matter, and that, theoretically, a pound of steam would fall as fast as a pound of water. That a bubble of steam rises to the top of a column of water is only true when the column is supported. The steam and the water cannot occupy the same space, and the water, being the heavier, displaces the steam and forces it to the top. A column may be part water and

part steam, yet the column, considered as a whole, must obey the law of gravity and will fall unless supported. The laws of hydraulics are as true in a boiler under constant pressure as in a penstock.

The progressive increase in the temperature of the water and the corresponding decrease in the temperature of the gases are indicated by the approximate figures. The bubbles indicate the progress of evaporation, which is completed in the lower tube, and the steam reaches the upcast in a superheated state. With an ordinary boiler the temperature in the upper tube would be higher than the temperature of the bases in this case.

To secure the maximum gravity head of water would require—

- a. A vertical downcast with only water in it.
- b. A vertical upcast with only steam in it.
- c. Complete evaporation secured in a horizontal tube connecting the lower ends of the two columns.

In the diagram the downcast is cut up into bends to give the required length of flow. The effective head will be the vertical distance from the point in the tubes where the solid column of water becomes broken by evaporation to the water level in the drum.

The rate of flow can be changed in three ways:

1. By varying the proportions of the passage and the number of bends.
2. By varying the head of water.
3. By varying the rate of combustion.

The question, then, of keeping the hot end of the tubular passage from getting too hot is merely a question of correct design, since whatever temperature a tube will withstand is no worse for it directly over the fire than near the flue.

The lifting effect upon the water, occasioned by falling pressures, affects the gravity force and acts as an instant check on the circulation or flow in any boiler. This effect is neutralized and the flow in the tubes is maintained during periods of falling pressures by the combined action of the anti-priming valve and bypass. The valve closes at the beginning of a drop, and the bypass allows sufficient upflow of steam to prevent excessive difference in pressure between the two chambers. The result is that the flow in the tubes is constant, irrespective of changes in pressure. The tubes may be automatically flushed by closing the bypass and causing a drop in pressure in the steam chamber.

The following points may be noted:

The water and gases flow in opposite directions, which is the ideal condition.

The flow is positive, and is most rapid in the bottom tube owing to the expansion of the water into steam.

The flow is independent of any inclination of the tubes, and is as rapid in a horizontal as in a vertical tube.

The upper tubes are always full of solid water, and there can be no water hammer action.

Evaporation is accomplished without recirculation of the water.

The steam has a short dry passage to the steam chamber, and there is no ebullition or "boiling" action.

The separate chambers for the steam and the water eliminate the possibility of priming or foaming.

The water chamber is a perfect settling tank, owing to the entire absence of ebullition.

The pressure and the water within the apparatus can be utilized for flushing the tubes automatically.

The temperature of the heating surface is practically nonfluctuating.

It is a remarkable fact that, while it has been so often recognized that the water should flow from the flue toward the fire, it has been almost universally assumed to be impracticable, without trial. Rankine states it, and so do Professor Thurston and others.

The practice with "coil" boilers, of which the Belleville is the chief exponent, is to supply the water at the hot end. When the economizers were added to the Belleville by the British Admiralty, the question was discussed of having the flow in the proper direction, but it was decided that it was too dangerous, and the flow was upward as in the boiler.

In conclusion it may be stated that it has been demonstrated by experiment that the same coil will with-

stand more heat with the water supplied at the cold end than at the hot end, and the reason is not far to seek. In the first case the larger portion of the coil is filled with water and the steam has a free means of escape, whereas in the second case there can be very little water in the coil, and what there is tends to clog the escape of the steam which is mostly generated in the lower tubes and is thus compelled to traverse the entire length of the coil.

Officers of the Allis-Chalmers Company.

Following is a complete list of the officers of the Allis-Chalmers Company, now owning and operating the works formerly owned by the Edward P. Allis Company of Milwaukee, Fraser & Chalmers of Chicago, Gates Iron Works of Chicago, and the Dixon Mfg. Company of Scranton, exclusive of the locomotive works of the latter:

Directors.—William W. Allis, chairman, Milwaukee; W. J. Chalmers, Chicago; Elbert H. Gary, New York; William A. Read, New York; Cornelius Vanderbilt, New York, all for three years; Charles Allis, Milwaukee; James H. Eckels, Chicago; William L. Elkins, Jr., Philadelphia; Max Pam, Chicago; James Stillman, New York, all for two years; Edward D. Adams, New York; Frank G. Bigelow, Milwaukee; Mark T. Cox, Orange, N. J.; Henry W. Hoyt, Chicago; Edwin Reynolds, Milwaukee, all for one year.

Executive Committee.—W. J. Chalmers, chairman; Edward D. Adams, Charles Allis, James H. Eckels, Henry W. Hoyt, Max Pam and Cornelius Vanderbilt.

Finance Committee.—William A. Read, chairman; Edward D. Adams, W. J. Chalmers, Mark T. Cox, Elbert H. Gary.

President, Charles Allis, Milwaukee; **vice-president,** W. J. Chalmers, Chicago; **second vice-president,** Henry W. Hoyt, Chicago; **third vice-president,** Joseph H. Seaman, New York; **treasurer,** W. J. Chalmers, Chicago; **secretary,** John W. Young, New York; **assistant secretary,** Joseph O. Watkins, Chicago; **chief engineer,** Edwin Reynolds, Milwaukee; **comptroller,** Benj. T. Leuzarder, Chicago; **general counsel,** Max Pam, Chicago; **assistant treasurer and transfer agent,** George A. Brewster, New York.

The main office of the Allis-Chalmers Company occupies the entire tenth floor of the Home Insurance Building, at Adams and La Salle streets, Chicago. The Eastern offices are located in the Broad Exchange Building, 25 Broad street, New York. All the old and well-known salesmen, heretofore identified with the constituent companies, have been retained in connection with the departments of which they have made a specialty.

European Dealers Reselling American Tools.—The Chicago machinery trade has been quite active during the past week. The Simplex Railway Appliance Company purchased a large outfit of machine tools to replace those ruined in the fire which recently destroyed their plant at Hammond, Ind. The Reliance Electric Company of Milwaukee also purchased a number of tools. The transactions of the week included numerous purchases of individual tools by manufacturing establishments, among which were a number of large planers. It is interesting to note that Chicago machinery houses have received letters from dealers in American tools in Europe, offering machines for delivery in this country, on which they are evidently overstocked. The prices quoted for delivery f.o.b. cars at American seaports are as low as those for which the same machines can be purchased from the manufacturers here, if not lower. This would represent quite a considerable loss to the European dealers.

Secretary Henry F. Devens of the National Metal Trades Association has gone to Chicago for the purpose of taking direct charge of the efforts now being made to secure a sufficient force of machinists to operate the few machinery establishments in that city whose men are still on strike. It is expected now that such vigorous efforts will be made to secure new men that these shops will speedily be working to their full capacity. It is stated that the Executive Board of the International

Association recently passed a resolution to make a direct fight on the plants of the Allis-Chalmers Company in Chicago. The issue is thus to be squarely met.

The Prentice Double Machine for Boring Connecting Rods.

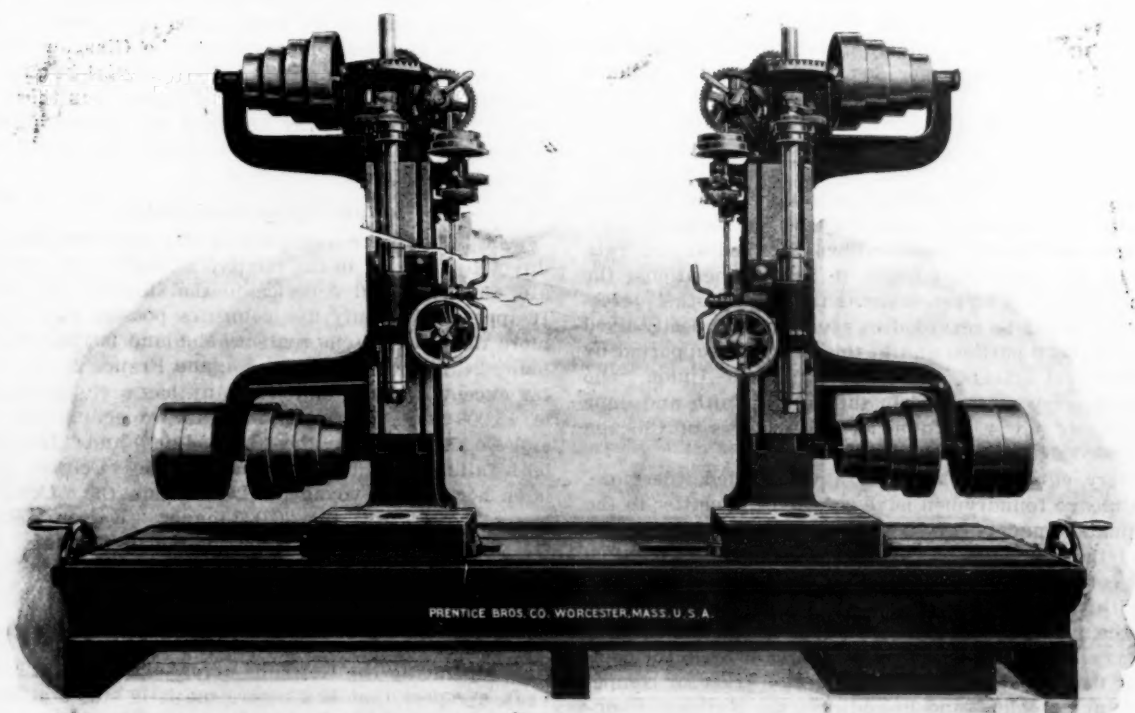
The Prentice Bros. Company of Worcester, Mass., have designed and built a connecting rod boring machine, which is composed of two complete and independently driven mills mounted adjustably on a heavy base. Holes up to 12 inches can be bored in each end on from 3 to 12½ feet centers. The spindles are counterbalanced, and there are extra weights for counterbalancing the boring bars. There are hand and power feeds, and a quick return and stop motion which permits the spindles to be quickly returned or approached while power feeding. Also the point of the boring tool may be brought to the work and the power feed thrown in by the same lever, while the machines are in opera-

The Steel Production of Pennsylvania.

The total production of steel of all kinds in Pennsylvania for 1900 was 6,256,775 gross tons, or within 189,384 tons of the production of 1899. Captain James M. Clark says in the annual report of the Bureau of Industrial Statistics, 1900, that it is creditable that the production of steel in 1900 in Pennsylvania falls so little short of the production breaking record of 1899.

There were 20 steel producing counties, Allegheny leading, with 64.7 per cent. Only nine of the remaining counties had a production equal to 1 per cent.—namely: Cambria, 8.2; Dauphin, 5.8; Lackawanna, 4.6; Philadelphia, 3.8; Chester, 3.8; Lawrence, 3.1; Westmoreland, 2; Mercer, 1.5; Northampton, 1.

The capital invested in iron and steel rolled into finished form was \$188,305,066; production, in net tons, bars, rods, strip steel, skelp shapes, rolled axles, structural iron, &c., not including billets or muck bar, 3,490,486; plates and sheets, including the plate production of the black plate tin works, 1,789,798; cut nails and cut



THE PRENTICE DOUBLE MACHINE FOR BORING CONNECTING RODS.

tion. There are eight changes of speed and four changes of feed. The bases are bored for bushings to support the boring bars. The sub-base has oil gutters around the edge and a deep trough through the center. The machine is supplied with an oil pump and the necessary piping to deliver a steady flow of oil to the center of each spindle. The maximum distance from the spindles to the base is 33 inches, and the minimum 5 inches. The spindles have a traverse of 13 inches. The greatest distance between centers is 126 inches, and the least 32 inches. The ratio of the driving gears is 1 to 20 and of the back gears 1 to 5. The machine occupies a floor space 13 x 4 feet, and is 8¾ feet high.

The Gulf Coast Shipbuilding Company, recently incorporated under the laws of Alabama with a capital stock of \$4,000,000, propose to build a large shipyard and marine railway at the port of Alabama, 30 miles south of Mobile, the yard to be capable of turning out any class of vessel up to a battle ship. Northern capitalists are understood to be behind the enterprise. The officers of the company are: Robert C. Morris of New York and New Orleans, president; S. D. Scudder of New York, first vice-president; S. B. McConico of New York, second vice-president, and W. D. Munson of New York, president of the Munson Steamship Company, treasurer.

spikes, 27,204; rails, 1,341,987; entire production, 6,649,475 net tons. Value, \$249,736,207. Average value a ton \$37.56. Value of the basic material—that is, the iron and steel only out of which the production was made (fuel, management, office help and all other items of expense not being considered), \$154,203,643. Average cost of basic material a ton, \$23.19. Average days of operation, 266. Number of workmen employed, 73,579. Aggregate of wages paid to the workmen, \$42,476,589. Average yearly earnings, skilled and unskilled, \$577.29. Average daily wage, \$2.17. Labor cost, a ton, \$6.39.

The Philadelphia Press reports a rumor to the effect that Philadelphia capitalists and others are interested in a project for the consolidation of electric street railways and suburban trolley lines in Ohio and Michigan into the system which, if carried out, will make the greatest system of electric roads in the country. It is proposed to form a syndicate for the purchase of 1160 miles of road, covering Cleveland, Toledo, Sandusky and Detroit, and reaching many of the smaller towns of Ohio and Michigan. The capital of the company is reported to be \$125,000,000. Among those said to be interested in the enterprise are P. A. B. Widener and W. L. Elkins of Philadelphia and Henry A. Everett and E. W. Moore of Cleveland.

The Chicago Molders' Strike.

The National Founders' Association has issued the following statement relative to the Chicago molders' strike:

The exact particulars with reference to the difficulty existing between the foundrymen of Chicago and their molders are as follows:

Early in the summer the molders of this city made a request of their employers for an increase in the minimum wages formerly paid floor molders of \$2.75 to \$3, and an increase in the minimum rate paid bench molders from \$2.50 to \$3.

Later on, in harmony with the provisions of an agreement existing between the National Founders' Association and the Iron Molders' Union of North America for the discussion and settlement of cases of that character, a conference was held, and as a result of that conference the following resolution was adopted and received the approval of the officers and members of the Executive Board of the Iron Molders' Union:

"Resolved, That beginning with July 1, 1901, the minimum wages for floor molders in the city of Chicago and vicinity will be \$2.85 per day, and for bench molders \$2.65 per day."

The molders of Chicago, however, decided to repudiate the action of their representatives or conferees, and declined to be governed by the wishes of their executive officers, resolving to "go it alone" and force the \$3 minimum if possible upon the Chicago foundrymen.

Inasmuch as an agreement was arrived at and ratified by the national officers of both associations, the foundrymen of Chicago insist that like any other agreement it should be regarded as sacred and honestly lived up to by both parties, and in this they are supported by the national officers of the Iron Molders' Union, who have in every way acted in the best of faith and done all in their power to influence the molders of Chicago to honor their agreement.

Every effort of all parties having failed, therefore, the Chicago foundrymen have referred the matter to the National Founders' Association, who are desirous of filling the foundries of this city as quickly as possible with competent molders.

With that end in view, the Chicago foundrymen will pay the rate of wages in existence before the present difficulty commenced—viz.: a minimum of \$2.75 for competent floor molders and a minimum of \$2.50 for competent bench molders, and in addition, the National Founders' Association will pay a bonus of \$2 per day to all molders who come here and go to work, one-half of said bonus to be paid on the regular pay days, and the balance retained until 30 days have been worked, after which all moneys due, whether regular wages or bonus, will be paid in full.

This latter regulation, however, does not apply to molders holding cards issued by the National Founders' Association. In their case, bonus will be paid in full from the start.

In addition to the foregoing, the National Founders' Association will issue a regular N. F. A. card to each molder who comes to work and remains for at least 60 days.

The value of these cards and their efficiency in assisting those who hold them to obtain employment, &c., is too generally understood to require comment.

Those molders who come to Chicago and who so desire it, can be assured of steady employment as long as they care to remain.

A storage battery invented by H. C. Porter of Chicago was used on the 7th inst. in making a remarkable run by an electric automobile. The test was made in Chicago and the automobile ran 187½ miles without recharging, which is claimed to have beaten all previous records for storage battery service. The owners of the storage battery, the Porter Battery Company, are confident that they will be able to run 200 miles without recharging. Batteries of this character will add greatly to the practicability of the electric automobile.

Notes from Great Britain.

Offices of *The Iron Age*, HASTINGS HOUSE, 1 NORFOLK STREET, STRAND, LONDON, W. C., July 27, 1901.

Vickers, Sons & Maxim.

At a recent meeting of the shareholders of Vickers, Sons & Maxim, held at Sheffield, certain proposals of the directors with regard to the increase of the company's capital were confirmed. The capital will now be \$24,000,000, by the creation of \$5,500,000 new ordinary shares ranking for dividend as from January 1, 1901. These new shares are allotted to shareholders fully paid up in the proportion of one new share for every two shares now held. The amount involved represents the larger part of the undivided profits of the company standing to the credit of the reserve fund, the idea of the scheme being to distribute the reserve fund in the shape of fully paid up ordinary shares.

One Result of the Strike.

The first result of the strike on your side, which, by the way, is attracting a good deal of attention over here, is a sudden demand for steel hoops for Canada, a market which has been shut against the Glasgow district for some years. The orders are substantial in quantity, and the prices paid are 5 per cent. higher than those that would have been readily accepted by makers quite recently. It is hoped that more of these orders will come from the Dominion.

Shipbuilding Competition

The issue of the new volume of Lloyd's Register has directed attention to the relative strength of Great Britain, Germany and America in the shipbuilding trades. It appears that only five countries possess steamers of more than 10,000 tons register, England having 26, Germany 24, America 6, Holland 3, and France 2. No country except England and Germany has a single steamer of 13,000 tons. Germany has nine exceeding this size and England has six, the "Campania" and "Lucania" both falling short of this tonnage. The "Celtic," which is on her maiden voyage, is 20,880 tons, the "Oceanic" being 17,274. But the 20,000-tonner "Kaiser Wilhelm II," now being fitted out for the North German Lloyd line at Stettin, while being nearly of the tonnage of the "Celtic," is far stronger in power, and the "Kronprinz Wilhelm" is not far behind the "Kaiser Wilhelm II." It would seem, therefore, as if British ship owners have given up racing the Germans across the Atlantic.

In a report that lies before me it is stated that the use of all materials employed both in the building and equipment of iron steamers and sailing vessels has, during the past ten years, more than doubled. Ships' fittings, such as capstans, pumps, galleys, skylights, &c., which formerly used to be purchased in the United Kingdom by German shipbuilders, or, if made in Germany itself, were very high in price, are now all supplied by German makers, who mostly confine themselves to manufacturing one special kind of article, and who have of late, it is stated, begun to do even an export trade in such articles to other countries. Factories of ships' fittings and articles of equipment are now to be found at Hamburg, as well as at Berlin, Hanover, Lubeck, Rostock and in other North German towns, and all are said to be in a thriving condition. The manufacturing of cabin furniture and fittings of all kinds has also made remarkable progress in Germany, as is testified by the fitting up of the large ocean going steamers which have been built during the last few years in German yards; the furnishing and decoration of the cabins, &c., of some of the vessels, particularly of those recently built by the Hamburg-American line, has been carried out with great artistic taste as well as with an eye to luxurious comfort. For the construction and repairing of ships there are, besides an establishment belonging to the State where pilot vessels and other craft owned by the Government are built and repaired, a number of more or less important shipbuilding yards on the side of the river opposite to Hamburg. In some of these ships of war and ocean going steamers of the largest class are built, and the most important of these yards now employ about 5000 workmen. There are several dry docks,

among which is a floating dry dock for vessels of the largest dimensions, belonging to the building yard companies.

Are Against a Trust.

A rough and ready canvass among the British iron and steel masters shows that they are against the formation of a trust. Some steps will be taken to combat American competition, but the feeling is apparently dead against what is described as "the extreme measure of forming a British trust." The English manufacturers seem to lose sight of the fact that there is nothing particularly extreme in forming a trust at all, but that, on the contrary, it is only by the formation of a trust that their business can be strengthened and they will be able to hold their own in the world's market.

Steel Workers and the Heat.

The weather has now broken, but during the recent intense heat the men engaged in the Sheffield steel works were unable to follow their employment during the day.

portance, except as an indication of the growing importance of the Indian and Asiatic trade.

The State of Trade.

On the whole, the iron and steel trade is holding up fairly well. There is a good deal of speculation on the Glasgow market, while the outlook for the autumn is regarded favorably. Scottish ironmasters have had recently quite an influx of orders and inquiries, while steel makers also report that a considerable number of specifications have now been received. In short, consumers are buying a little further ahead than has been the case all this year. Thus there is a spirit of hopefulness, which it seems to me is hardly justified by the facts. For example, prices appear to be going down to a considerable degree, as indicated by the automatic decreases in wages under the varying sliding scales. I extract herewith a table from the "Labor Gazette" setting forth the facts both in the iron and steel trades and in the engineering, shipbuilding and miscellaneous metal trades:

		Iron and Steel Trades.			Particulars of change.
Locality.	Occupation.	Date from which Approximate change takes effect in 1901.	Inc.	Dec.	
Cleveland and Durham.	Blast furnace men.	6 July	...	5,500	Decrease of 4½ per cent. under sliding scale, leaving wages 18½ per cent. above standard.
Consett and Jarrow.	Steel mill men.	1 July	...	1,110	Decrease of 7½ per cent. under sliding scale, leaving wages 15 per cent. above standard.
West Cumberland.	Blast furnace men.	1 July	...	1,350	Decrease of 2 per cent. under sliding scale, leaving wages 19¼ per cent. above standard.
Millom.	Blast furnace men.	7 July	...	110	Decrease of 2 per cent. under sliding scale, leaving wages 21½ per cent. above standard.
Barrow-in-Furness.	Steel workers:				
	Rail mill men.	1 June	...	670	Decrease of 10 per cent. under sliding scale, leaving wages 30 per cent. above standard.
Barrow-in-Furness.	Blast furnace men.	1 July	...	500	Decrease of 2 per cent. under sliding scale, leaving wages 16½ per cent. above standard.
Darwen.	Blast furnace men.	6 July	...	48	Decrease of 4½ per cent. under sliding scale, leaving wages 18½ per cent. above standard.
Ulverston.	Blast furnace men.	8 July	...	172	Decrease of 2 per cent. under sliding scale, leaving wages 16½ per cent. above standard.
North Staffordshire.	Blast furnace men.	July	...	600	Decrease of 9 per cent. under sliding scale, leaving wages 16¼ per cent. above standard.
South Wales and Monmouthshire.	{ Blast furnace men.	1 July	...	1,250 }	Decrease of 10½ per cent. under sliding scale, leaving wages 19½ per cent. above standard.
Blaenavon.	{ Iron and st'l w'kers.	1 July	...	5,000 }	
	Blast furnace men.	17 June	275	...	Advances on standard tonnage rates, averaging about 5 per cent.

At Cammell's those engaged in the shops where the temperature was very high, owing to the character of the work, worked in the evenings. At John Brown & Co.'s there were several stoppages in some departments.

Patents Decreasing in Number.

The eighteenth annual report of the Patent Office shows that a remarkable decrease has taken place during the past year in the number of applications for patents. The total number received was 23,922, showing a decrease of nearly 2000. In the British Isles 15,300 patents were granted, which is the largest number for any country, the United States, next in numerical order, being represented by only 3184 new inventions. The number of designs applied for was 16,952, out of which 16,282 were granted; and there were 7937 trade-marks registered. In the sphere of finance everything is satisfactory, for the income of \$1,130,455 is an increase on that of the previous year. It is principally accounted for by the increase in the number of annual fees paid for the renewal of patents. The surplus of receipts over payments is \$527,120, an increase of \$14,700.

Krupps' and the Far East.

I recently referred to the fact that a representative of Krupps' had gone to India with a view to making a survey and generally ascertaining the business prospects in that great country for the iron and steel trade. It is now stated that another representative has gone to Bangkok, in response to a message from the Siamese Government. This time it is to supply a new pattern rifle for the Siamese forces. It is further stated that an American firm is also in strong competition with Krupps' for the business, which will run to a considerable amount. The incident is not in itself of great im-

A Notable Chicago Bridge Completed.

The longest span bascule bridge thus far built has just been completed over the Chicago River, near Taylor street, in the city of Chicago, for the Chicago Terminal Transfer Railroad Company. It has a span of 275 feet from center to center of bearings. The bridge was constructed on designs, plans and specifications of the Scherzer Rolling Lift Bridge Company by the Pennsylvania Steel Company through their Western representatives, the Railroad Supply Company, and erected by the Kelly-Atkinson Construction Company. It contains about 1500 tons of steel, in addition to 700 tons of counterweights used in bringing the two leaves of the bridge to a vertical position. These leaves are operated by electricity. G. P. Nichols & Bro. of Chicago furnished the electrical equipment, two 50 horse-power motors being required for each leaf. The leaves can be operated separately from operating houses on the sides of the river or both can be controlled and operated by one man on the east side. The bridge is a very heavy one, carrying two railroad tracks.

The old style swinging bridges over the Chicago River, requiring a center pier, are gradually being supplanted by bascule bridges, which leave the entire channel of the river clear of obstructions.

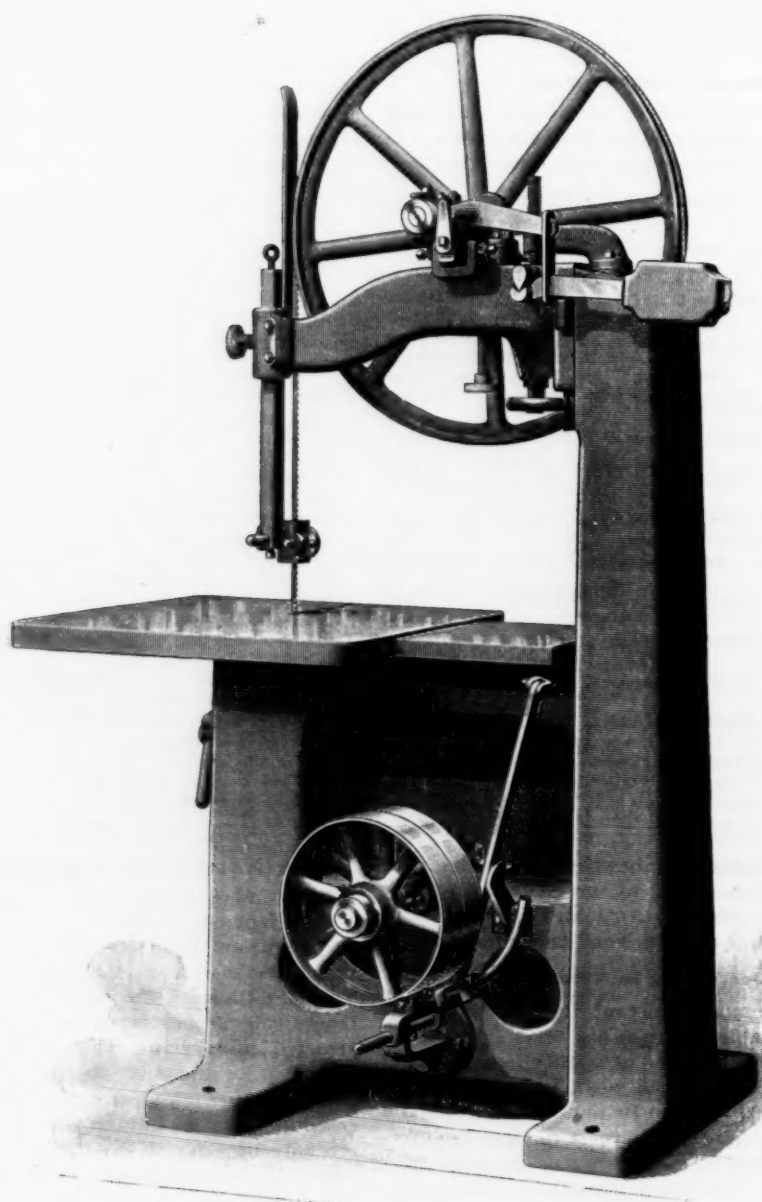
Foundrymen from all over the Central West will gather at the Price Hill House, Cincinnati, Ohio, on August 31 as the guests of Thomas S. Griffith of the Hill & Griffith Foundry Supply Company of that city. While matters of business will take up the better portion of the visitors' time, an enjoyable programme has been formulated for their entertainment.

The Fay and Egan Band Scroll Saw.

The new band saw, built by the J. A. Fay & Egan Company of Cincinnati, has a square, upright column in which the iron is so distributed as to insure great rigidity, thereby allowing the machine to be run at high speed without vibration. The iron tilting table may be securely clamped at any desired angle. The tilting device for the upper wheel is within easy reach of the operator from the front without stopping the machine. The wheels are 36 inches in diameter and perfectly balanced. The lower one has a web, instead of spokes, so that it

or when the blade passes through hard and knotty substances or when boards of very uneven thicknesses are fed into the machine. It also provides for the slight but ever changing variations in the strain on the blade, due, for instance, to the expansion and contraction of the saw blade, and maintains the blade under a uniform tension. The machine will take in 18 inches under the guide.

Cotton made the biggest record of any American product in value of exports during the fiscal year 1900-1901, scoring a total of \$313,673,443, according to the



THE FAY & EGAN BAND SCROLL SAW.

circulates no dust, and being heavier than the upper it controls its movements.

The top wheel, which is hung solely on a knife edge, is shown in Fig. 2. The bearing A is carried by the bar B, which rests upon the knife edge C. In order to adjust the wheel in relation to a vertical plane and also cross line it to determine the track of the saw blade, adjustments are provided for the knife edge C. Both horizontal and vertical adjustments are accomplished by means of the screws K and L, the arrangement of which will be understood from the drawing. The link D connects the bar B with the bar F, all the joints being knife edges, as indicated. The bar F carries the counterweight G. This construction compensates for the great and sudden strains to which a band saw blade is subjected—as, for instance, when the board strikes the blade

official statistics of the Treasury Department. The best previous cotton export year was 1891, when \$290,712,900 worth was sent abroad. In quantity the exports of the past year were not so great as in 1895, 1898 or 1899, but the price was so much better that the value of exports in 1901 exceeded by many millions that of the years of the greatest movement, as measured in pounds. The aggregate value of the cotton exports in the last ten years is more than \$2,000,000,000.

The fire loss of the United States for July again showed a heavy total. According to the *New York Journal of Commerce* the aggregate loss amounted to \$15,740,000, which is abnormally large for July. The June loss was \$9,500,000. The total for the seven months ended June 30 has reached \$104,675,000.

An Independent Association of Metal Workers in the Navy Yards.

WASHINGTON, D. C., August 13, 1901.—An important incident of the past week has served to embarrass the officials of the International Machinists' Association not a little, although to the unprejudiced observer it might appear to be but the logical outcome of the ill-advised strike which although now collapsed has not yet been declared off. This has been the organization in this city of an independent order designed to embrace all the metal workers of the Government navy yards and arsenals, the purpose being to bring about a community of interest entirely independent of the International Machinists' Association, though the members of the new order will be at liberty to retain their membership in the association if they desire to, and are not expelled because of their affiliation with the "Navy Yard Employees' Protective Association," as it is called. The machinists of

the new order could advantageously become affiliated with the American Federation of Labor, but the chief consideration should be the perfection of a strong independent organization. Another speaker declared that the machinists in the employ of the Government were being heavily taxed "to support the officers of the International Association in luxury," and added that the recent convention of the association held in Toronto cost \$7000, while during the month of June but \$2000 was spent by the association for the support of the strikers. The election held at the initial meeting resulted in the selection of W. A. Craig, a machinist not a member of the International Association, as president; Charles Watermeyer, vice-president; Henry W. Miller, recording secretary; E. S. Morgan, financial secretary, and C. Stanley Klein, treasurer. An adjournment was taken for two weeks to allow a special committee on by-laws to prepare a report.

President O'Connell asserts that the movement for

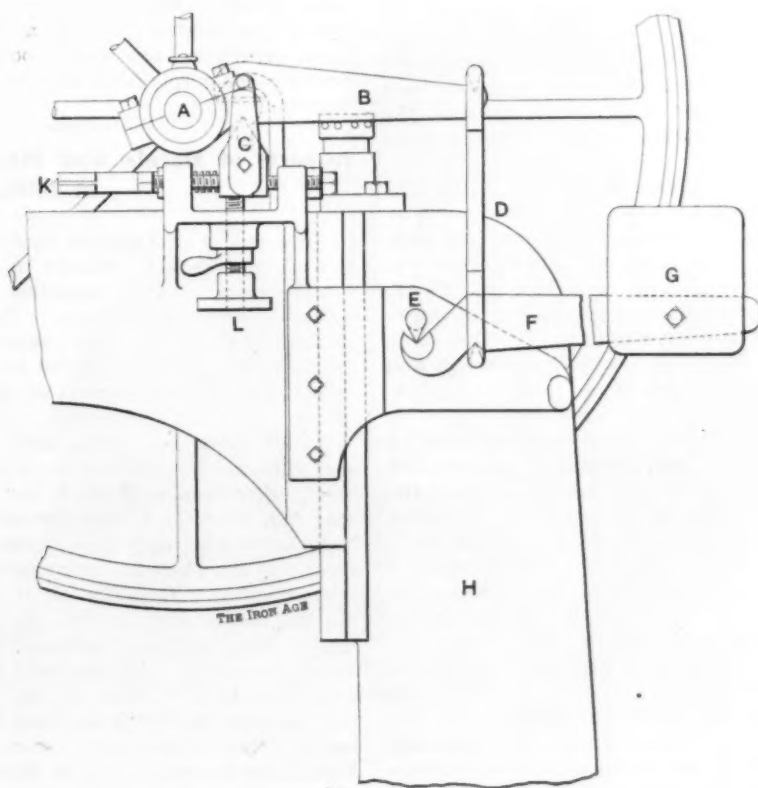


Fig. 2.—Bearings of Top Wheel Carried on Knife Edges.

THE FAY & EGAN BAND SCROLL SAW.

the navy yard were the prime movers both in originating and perfecting the new organization, which was formed in response to a call signed by 300 of the employees of the Washington Navy Yard, at a meeting held on the 9th inst.

General dissatisfaction with regard to the management of the International Machinists' Association and especially with President O'Connell's conduct of the nine-hour strike was freely stated as the reason for launching a new and entirely independent order. One of the projectors of the new movement who called the initial meeting to order declared that the interests of machinists and other mechanics in the service of the Government were quite different from those of men employed in private establishments, and hence they needed an organization of their own. President O'Connell of the International Association and President Gompers of the American Federation of Labor, it was stated, opposed the bill granting 15 days' annual leave of absence to navy yard and arsenal employees, passed at the last session of Congress, on the ground that it was interfering with the eight-hour bill which was then being pushed by the Federation. The speaker thought

the organization of the new order "has been started and fathered by men dissatisfied because they were not allowed to run things as they saw fit in the Machinists' Association." He asserts that a charter could not be issued to any such body by the American Federation of Labor for the reason that the fundamental principle of the Federation is that each trade shall control its own craftsmen, and the International Association of Machinists claiming sole jurisdiction over that craft, no application for a charter for another similar organization could be entertained. As to the charge that he and Mr. Gompers undertook to prevent the passage of the 15 days' leave of absence bill, Mr. O'Connell says it is false, as both officers favored the measure, although they "advised the committee to be careful not to allow their bill to interfere with the eight-hour bill." Mr. O'Connell traces the disaffection of the chief promoter of the new order to the unwillingness of the International Association to print Senator Hanna's picture in their monthly bulletin as requested. Referring to the cost of the Toronto convention, Mr. O'Connell said the total expenses were \$1393.89, and that during the month of June \$52,001 were disbursed in aid of the strike. W. L. C.

The Western Interests of the Steel Corporation.

DULUTH, MINN., August 10, 1901.—The problems of organization that have confronted the United States Steel Corporation in connection with their vast mining and lake and rail transportation business are being worked out very steadily, and the results are taking form at Duluth and in the Northwest very rapidly. It is entirely within bounds to say that never was such a problem presented, never a more serious problem, one in whose solution lay the foundations of success for such an enormous business enterprise. The unprecedented interests involved, the multiplicity of intricate details of ores and handlings, the importance of a strict economy and yet the necessity for a broad and liberal policy, the public interests to be cared for and the public opinion to be watched, all these and more made this problem what it was. It has been a fascinating study to follow the unfoldings of the problem and its gradual expansion to meet the vast requirements of the situation.

In the first place, no small man can have part in the work. The plan gave no room for these. The questions involved are too momentous, the future is too vast, the company's share in the world's commerce too great to permit this.

The situation is unique, and while it is realized by many readers of *The Iron Age* it may be well to touch on a few salient points. The Corporation mine the bulk of the iron ore of the Lake Superior country, move the greater share of their product on their own railways to the lake, carry to Eastern ports in their own ships, and in those under contract to them nearly all of their requirements of ore. The furnaces are widely scattered, and demand widely different classes of ore in varying quantities. Docks at receiving ports are not able to hold at one time any great proportion of the ores required by furnaces reached from them. Constant surveillance must be had, practically under one master mind, of the chain of circumstance reaching from mines to furnaces, and the lines of communication must be so mobile as to permit switching anywhere along the route as sudden occasion demands. There must be at the furnaces the ores they require for the specifications they are meeting and in the quantity they demand. The winter season must be looked out for and sufficient storage arranged where it may be readily drawn upon. The mines must be maintained at that pitch of efficiency that will give the best results at the least expense. The railroads to Lake Superior must be able to constantly carry away the ores, whether from the shovels of open pit mines or the depths of underground properties, and there must be no cessations from accidents. The lake ships must move like the shuttle of a loom, must be directed to that port where relief is needed for overcrowded docks or certain ores are wanted, and must go to whichever point of unloading the necessity of the moment calls. Steamers must act as towing machines for consort barges, or go alone as the situation of the day seems to rule. And there must be no mistake, there must be no delay, for the business to be done is up to the capacity of the several instruments engaged therein.

This is the sort of work that the managers of the ore and transportation interests of the United States Steel Corporation, James Gayley, T. F. Cole, N. P. Hulst, W. J. Olcott, F. E. House, D. M. Clemson, A. B. Wolvin and D. G. Kerr, are now carrying on.

Within the week several matters connected with the details of organization have been concluded. One of these was the closing of negotiations for a permanent building at Duluth for these headquarters of ore and transportation interests. A splendid site has been selected, but the fact that it was already under lease and a building for mercantile purposes was under way caused delay. The ground, 100 x 140 feet, on the corner of First street and Third avenue, west, was finally bought, and both the merchant and the contractor satisfactorily settled with. Plans for a building that will make the investment \$300,000 are in the hands of a local and prominent firm of architects, and the directors of the build-

ing company met Saturday afternoon to consider them. The building will be of steel construction, faced with brick or stone, and will be six stories. It is probable that it will be completely occupied by the various branches of the Corporation, which will take a lease for ten years or longer. The structure will be known as the "Wolvin Building," a deserved compliment to A. B. Wolvin, who has worked hard to unravel the difficulties of the situation.

Geo. D. Swift, for a number of years assistant-treasurer of the Rockefeller mines, &c., with offices at Duluth, has now been made assistant treasurer of the entire ore interests, a position of great responsibility and importance. H. J. Wessinger, for years master mechanic for the Minnesota Iron Company, at Soudan, and later holding the same position with the American Mining Company and manager of the Saunten mine, has been appointed mechanical engineer for the ore interests of the Corporation, with headquarters at Duluth. He is in thorough command of his duties, and is a most valuable man. Frank Drake of Ironwood, formerly with the Oliver Iron Mining Company at the Norrie group and of great experience, has been appointed chief mining engineer for the corporation, and will have headquarters at Duluth.

D. E. W.

Imports of Metals and Machinery into Japan in 1900.

In a report on Japanese trade in 1900, United States Consul-General E. C. Bellows, at Yokohama, sends some interesting information regarding the growth of the trade in American goods in Japan. The statistics of imports of foreign goods into that country last year show that she imported from the United States goods to the value of \$31,255,075, standing next on the list to Great Britain, which sent \$35,675,833 worth.

In iron—pig and ingot, plate and sheet, galvanized and corrugated—iron screws, wire and small rod iron, steel, other than mild steel, and tinned plate or sheet, England, says the Consul-General, still holds the lead; but in pig and ingot iron Germany is gaining on her rival, less than half the entire receipts of this commodity being credited to Great Britain, whereas in 1898 and 1899 she had nearly three-fourths. In the other iron products named her proportion continues nearly the same as in former years; but in bar and rod iron, in which she rivaled Belgium in 1898, she has fallen far behind, having less than two-thirds as much as that country, which leads in this product and in iron pipes and tubes. The United States stands first in Japanese imports of rails, fittings of rails, iron nails, electric light wire, telegraph wire, and materials of bridges and buildings, sending more of each of the first three than all other countries combined, and being far ahead in the last two, in which she held second place in 1899. In iron pipes and tubes she advanced to second place in 1899, and still holds it with a largely increased proportion, but in the other iron products she is retrograding rather than advancing.

In exports of brass tubes to Japan, England still leads and the United States is second; but since 1898 Great Britain has lost fully one-fourth of her trade in these articles, while our country has more than quadrupled hers. The same statement may be made of copper tubes, except that England has lost a smaller proportion of her trade in this article.

In pig, ingot and slab lead Australia has more than four times the trade of the United States, which again stands second, the latter country having a little more than reached the amount of her sales in 1898, while Australia has more than doubled her figures for that year.

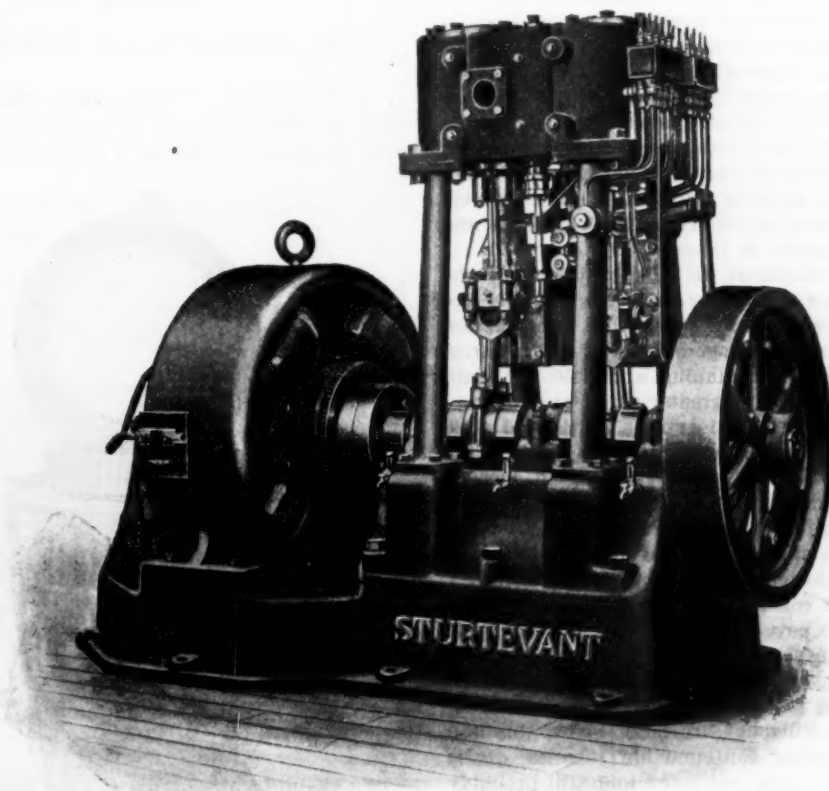
America still holds her supremacy in Japanese imports of bicycles and tricycles, and leads in electric light apparatus, mining machinery, paper making machinery, watch cases, and watch movements, but is surpassed by Germany in clocks, weaving machinery, and sewing machines; by Great Britain in fire engines and pumps, tools and implements of farmers and mechanics, photographic apparatus, locomotive engines, spinning machinery, steam boilers and engines, belting and hose for machinery, and turning lathes; by Belgium in telephones;

and by Switzerland in watches. In all these, except spinning and weaving machinery and watches, the United States stands second, and a comparison of the figures for 1900 and those of the previous years shows a very creditable increase of her exports to this country. As the people of Japan come to accept and act on the doctrine—already being taught by many of her most thoughtful citizens—that her future prosperity depends largely on the substitution of machinery for cheap labor, she will need to purchase this line of goods in greatly increased amounts, and the United States should be alert to receive her share of the growing commerce.

A New Sturtevant Generating Set.

The accompanying illustration represents a generating set of the latest design by the B. F. Sturtevant Company of Boston. The engine is a vertical compound, and the generator is of the four-pole type. In this design

ducts which connect in turn with radial ducts passing through the core, and by means of small blades or vanes inserted in these ducts compel the circulation of a constant current of air, thereby greatly facilitating ventilation and insuring extremely cool running. The winding for all low voltage machines is of copper bars. High voltage or very slow speed machines have the armature wire wound with machine formed coils, which are thoroughly insulated before being placed upon the core. The magnet frame is of special magnet steel, and has the field cores cast with it. The ring is cast in one piece. The commutator consists of drop forged segments of pure copper, mounted upon and secured between cast iron flanges of spider construction, which allow a circulation of air inside as well as outside and conduce to low temperature. Carbon brushes only are used in these machines, and mounted in holders of the sliding socket type with easy facilities for adjustment and removal. A full load run for a sufficient length of time to bring every



A NEW STURTEVANT GENERATING SET.

the bed carries three main journal bearings, brass bushed in their lower halves and provided with continuous oiling devices in connection with oil reservoirs beneath; its interior is formed into a basin which collects all drip from water or oil. The four heavy upright columns are securely fastened to this bed, and to their upper ends is bolted the single cylinder casting, comprising the two cylinders, which are of relatively large diameter and short stroke. Two piston valves are operated in unison by a single rocker and yoke, each regulating the admission of steam to one cylinder. The cross heads are of the slipper type with projecting cross head pins; the connecting rods have yoked cross head pin ends and are of large size. Both connecting rods and cross heads are of forged steel. The cylinders are thoroughly lagged. Complete sight feed oiling arrangements are provided for all the bearings. These engines are built in two sizes—namely, 47½ and 60 horse-power at 150 pounds steam pressure.

The armature shaft is direct connected to the engine shaft and carries an armature of the barrel wound toothed drum type with slotted disks of carefully annealed sheet steel, which after being coated with an improved insulating varnish is mounted upon a cast iron drum. This drum is provided with longitudinal air

part to its maximum temperature has never been found to produce a temperature rise exceeding 40 degrees C.

The Rail Production of 1900.

The American Iron and Steel Association has completed its collection of the statistics of the production of all kinds of rails in the United States in 1900. In March last the production of Bessemer steel rails by the producers of Bessemer steel ingots in 1900 was given as amounting to 2,361,921 gross tons. To this total must now be added 21,733 tons of Bessemer rails made in the same year from purchased blooms and rerolled and renewed Bessemer rails, making a grand total for the year of 2,383,654 tons of Bessemer steel rails. In the same year we also made the largest quantity of open hearth rails in recent years, 1333 tons, and the smallest quantity of iron rails ever recorded, 695 tons, which, added to the Bessemer steel rails above given, make the total production of rails in 1900 amount to 2,385,682 tons, the largest production ever attained in one year.

The following table gives the total production of rails in the United States in 1900 according to the weight of the rails per yard. Included in the total production are

101,312 tons which have been definitely reported as street rails:

Kinds.	Under 45 pounds.	45 pounds and less than 85.	85 pounds and over.	Total. Gross tons.
Bessemer	155,950	1,625,646	602,058	2,383,654
Open hearth.....	886	447	.....	1,333
Iron	695	.....	.....	695
Totals.....	157,531	1,626,093	602,058	2,385,682

The total production of all kinds of rails in 1899 was 2,272,700 tons, of which 133,836 tons weighed less than 45 pounds to the yard, 1,559,340 tons weighed 45 pounds and less than 85 pounds, and 579,524 tons weighed 85 pounds and over 85 pounds. The street rails made in 1899 and reported to us amounted to 154,246 tons.

Lake Iron Ore Matters.

DULUTH, MINN., August 10, 1901.—Ashland ore shipments are ahead of a year ago, amounting now to 1,500,000 tons. If the present record is anywhere near maintained the Gogebic will this year surpass all previous totals, as will Vermillion and Mesaba.

Several of the lean ore mines of the Menominee range, belonging to the big interest and to others, have been closed down and will probably not open for some time, perhaps not this year. The shipment of ore from the Menominee is considerably curtailed. Some properties on this range are being looked over by agents of Ferd Schlesinger, with a view to exploration and development, and two or three in the vicinity of Florence and Iron River may probably be taken.

Underground development at the new shaft of the Great Western seems to indicate that it is a larger ore body than had been supposed. At the Bird mine the ore body is now shown to be at least 100 feet in width, carrying a low phosphorus ore running about 50 per cent. iron. It will be developed to greater depth at once.

Oglebay, Norton & Co. will explore at the old Ohio and Norwich properties, Marquette range. Work at the old Portland has shown well, but it is idle on account of the scarcity of men. The Republic Iron Company have bought a large Gates crusher for No. 9 shaft, though all the ore coming out of the mine will be sent through it. It is expected to be in operation this fall.

On the Mesaba a considerable body of ore has been found in the western part of section 29, T 58 R 20, west of the Pillsbury mine. It is interesting from the fact that this land had been explored not so many years ago without result, the exploration showing a large wall of taconite west of the Pillsbury ore body. Now this find is in evidence to further confound old theories. It is under negotiation to a large company and will probably be opened soon. Ore has been found north of the Mahoning mine, on land that showed no ore years ago. It was the accepted belief, not only from theory but from exploration as well, that the north line of ore along 1 and 2, T 57 R 21, coincided quite closely with the Mahoning north line, but some bunches have now been found to the north. These present explorations along the Mesaba are doing more to widen the formation and to determine the exact limits of known ore bodies than to discover large new deposits, and this is likely to be the history of future finds. A large body of ore is being opened into near Hibbing that a few years ago was explored, thoroughly it was thought then, without result. Every hole put down over a large area went into taconite, or some hard rock, that seemed to the drill runner to resemble it, and was instantly stopped. The incompleteness of these old examinations has been too frequently shown of late to permit any reliance to be placed upon them as a final determination. An additional case in point comes to hand in a 40-acre tract at the Fayal, lying adjoining and to the north of that mine's vast open pit. This 40 had been explored at least three times by pits and drills. A few weeks ago it was taken up again, and at a point some 600 feet north of the Fayal line and near the center of the 40, east and west, ore was encountered in the pits. The find is being examined further and may develop into something of some importance.

The annual statement of iron ore production of the

United States, just issued by the Government, shows Minnesota as second producer, falling a trifle behind Michigan in 1900. The figures make Minnesota about 100,000 tons short of the Michigan production for the year. But the statistics are of production and the question should rise, Is it not time to make a change in the method of gathering these figures so that shipment and not production shall rule? For the figures, as now gathered, are inaccurate in that the bulk of the production of Minnesota is from open pit mines, while all that of Michigan is from underground. In the case of the former shipment and production cease simultaneously with the close of the season, while the shipment of Michigan ceases at the close of navigation, though production continues till the close of the calendar year. Concretely, Minnesota actually produced—that is, sent to market—about 400,000 tons more than Michigan last year. This fact the Government does not show. It may not show in the next annual statistical report that Minnesota leads both Michigan and Wisconsin combined, but there is little question but the fact will so be.

D. E. W.

The Standard Round Molding Machine.

In the standard round molding machine made by the Wm. H. Eddy Company of Worcester, Mass., the stripping frame is worked by a lever which is operated by



THE STANDARD ROUND MOLDING MACHINE.

the foot. A screw adjustment is provided for the drop and adjustment of the pattern in the stripping plate. These machines are built in sizes from 12 inches and upward.

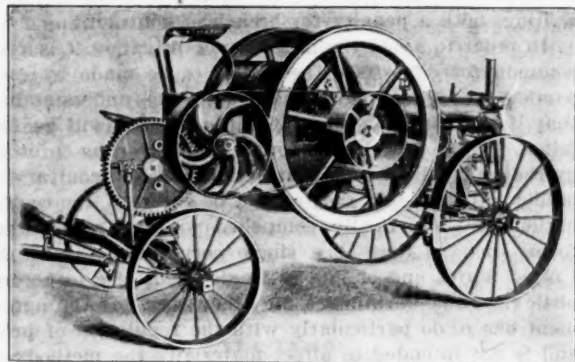
Picketing and Persuading.

BOSTON, MASS., August 10, 1901.—Judge William Sullivan, master in the case of the American Tool & Machine Company against George E. Nickerson and other members of the Machinists' Union, has filed his report with the clerk of the Superior Court. He finds that the defendants have acted lawfully in the matter of pickets, but unlawfully in their efforts to persuade plaintiffs' employees to quit work. He also finds that the union has no legal right to persuade those engaged by plaintiffs to break their contracts. He recommended that the Court should issue an injunction against those engaged in such unlawful acts. The Court entered a decree for a permanent injunction against a number of members of the union. The appeals to persons seeking employment at the company's works, which the master declares lawful, were sufficiently effective to persuade be-

tween 300 and 400 men not to apply for work. In his report Judge Sullivan says: "I find that no physical violence or threats of violence have been used by any of the defendants; that they have not blocked or obstructed the approaches to the plaintiffs' places of business; that they have not sought to intimidate any applicants for employment or employees of the plaintiffs. The purpose of the defendants in doing the several acts related has been to make it impossible or difficult for the plaintiffs to fill the places of the men discharged on June 11, and thus to constrain the plaintiffs to take them back on the terms demanded by them and at the same time to benefit the condition of the whole machinist trade by establishing for its members shorter hours and more pay. The plaintiffs, on account of the acts described, which are still resorted to by the defendants, have not been able to fill the places of the men who left on June 11, and have suffered and are still suffering great injury to their business and said injury is likely to continue. I rule as matter of law that the picketing and other acts of the defendants done for the purpose of inducing or persuading men not to apply for employment in the shops of the plaintiffs are lawful; but that all acts of the defendants done to persuade or induce men to leave the employment of the plaintiffs, or to break engagements to work for the plaintiffs, are unlawful and that an injunction should issue against the defendants guilty of such acts." B.

The Sterling Portable Gasoline Engine with Pumping Gears.

A portable gasoline engine having a pumping jack mounted on the front end of the frame has been designed by the Charter Gas Engine Company of Sterling,



THE STERLING PORTABLE GASOLINE ENGINE WITH PUMPING GEARS.

Ill. The gear is operated by a belt running from the pulley on the engine shaft to the tight and loose pulleys on the pinion shaft. This attachment is intended for use on large ranches where the wells are located at different points on the ranch. Instead of having a pumping jack at each well, the engine is hauled to the wells, the pump rod connected to the working head in the well, and as much water pumped as desired, when the outfit is disconnected and moved to another well. By throwing off the pump belt the engine can be used in the ordinary way wherever power is demanded.

Stickney Gas and Gasoline Engines.—An exceptionally handsome catalogue has just been issued by the Charles A. Stickney Company, St. Paul, Minn., manufacturers of gas and gasoline engines. The Stickney engine is so built as to operate equally well on gas or gasoline, and if found desirable to change from one fuel to the other at any time, the change in fittings can be applied with but little trouble or expense. The regulation of speed in this engine is accomplished by reducing the force of the explosion instead of missing numerous explosions. This is done by regulating the amount of explosive mixture admitted to the cylinder, without changing the proportions of gas or gasoline and air. This method causes an explosion each second revolution of the crank shaft, the force of the explosion depending upon the work to be done. The company claim that this

insures an engine running much more steadily than the hit-and-miss type, and also causes the wear and tear on the machine to be reduced to a minimum. The steel engines are made to standard jigs, templets and gauges, making the parts of the engines of the same size interchangeable with each other. The illustrations shown in the catalogue comprise single, double and triple cylinder engines, all of the vertical type, direct connected engines, combined engines and air compressors, combined engine and hoist, and a portable engine. The company make the following portable combinations: Centrifugal pumps, plunger pumps, air compressors, cord wood sawers, blowers, hoists, concrete or mortar mixer and electric light or power plants. These portable combinations are made with engines running from 8 to 30 horse-power. The stationary engines are furnished up to 300 horse-power.

Utilization of Tin Scrap.

When first I turned my attention to the subject, says Prof. Joseph Richards, in the *Journal of the Franklin Institute*, I found that large quantities of tin scrap and galvanized iron were every day carted to the dumps. I found that the average coating on scrap tin, tin as tin on plate, was 3 per cent.; that the iron, if properly cleaned, could be used in the knobbling furnace and in the puddling furnace; that the use of galvanized iron was a necessary part of the process; and it looked so encouraging that we decided to build a plant to work it on a commercial scale.

I procured a half dozen of the larger beer casks used for storage, and which are about 6 feet in diameter and 6 feet deep. After removing the heads they were placed in the ground in a semicircle and a crane was rigged up that commanded all the tanks. In the first tank was charged hydrochloric acid; in the second, water; in the third, water with a little lime; in the fourth, water; and in the fifth, a solution of copper sulphate.

The plan of work was to fill a large wooden cage that would hold loosely about 200 pounds of the clippings. This was swung on the crane and placed in No. 1 tank. In ten minutes' time the crane was raised and the clippings examined to see if the tin was dissolved. If so, the cage was then lifted out of the acid tank and another cage filled with clippings took its place. The cleaned scrap was washed in the water tank No. 2, lifted up and down to well wash it, and then immersed in the lime tank, No. 3. This neutralized all the residual acid that was left in the pores of the iron. The untinned and limed scrap was then moved to water tank No. 4 for a final washing, then plunged for a moment, just enough to submerge it, in the copper sulphate solution, then immediately removed. The object of this treatment was to form an exceedingly thin film on the iron, to prevent the rusting of the clean iron, which is so sensitive when exposed to the air that it will almost immediately cover itself with rust. The cleaned scrap was compressed in a drop press into balls, and in this form was shipped to the iron works and worked into blooms for sheets, commanding a price of from \$10 to \$12 per ton.

After the process had been continued for some time all the acid in No. 1 tank would become neutralized and we would have a solution of chloride of tin.

The process of tin cleaning stopped here for a while. We then took a cage of galvanized iron scraps, filling the cage loosely. When the zinc came in contact with the tin solution the metallic zinc took the place of the tin, forming zinc chloride, and all the tin was precipitated as metallic tin, in a finely divided state. We worked this plant successfully for some time, recovering, when melted into ingots, about 600 pounds of tin from 10 tons of scrap. The recovered iron commanded \$10 per ton and the zinc chloride \$20 per barrel, for disinfectant purposes, and for treating wood to make it fire proof.

We finally closed the works because of the objectionable vapors that annoyed our neighbors, with the intention of rebuilding on the swamps near Chester; but other things prevented us doing so. I yet think it is the best and most profitable means of utilizing this scrap, especially if electricity is used for the deposition of the tin.

European Trusts.

A Report by Prof. J. W. Jenks of the Industrial Commission.

WASHINGTON, August 13, 1901.—The Industrial Commission has prepared an official abstract of an elaborate report upon the subject of European trusts, compiled by Prof. J. W. Jenks, the commission's trust expert, as the result of an exhaustive investigation extending over the past two years, and embracing visits to the leading European industrial centers. The conclusions of the commission, which will be read with special interest at this time as bearing upon similar problems in the United States, are that there is little objection to combinations in Europe; that there is little or no belief that the protective tariff is responsible for their existence; that there are no railroad discriminations in Europe tending to create combinations; that the publicity in the organization of corporations abroad has largely prevented stock watering, and that there is no inclination manifested in the leading European countries toward the passage of laws designed to kill the combinations. The commission's summary is as follows:

The situation regarding industrial combinations in Europe probably justifies the following conclusions regarding the nature and results of industrial combinations there, and European experience suggests certain thoughts applicable to the situation in the United States.

Extent of Combinations.

There is a strong tendency toward the formation of industrial combinations everywhere in Europe. In Germany it is probable that the movement has extended as far as in the United States, and that the combinations there, speaking generally, exert as great power over prices, over wages, and in other directions as they do here. The plan of organization, however, as appears from the report itself, is materially different. In most cases the German combinations are made simply by contracts between independent establishments regarding output, prices, &c., instead of the form being that of a single large corporation. In practically all of the important cases, however, the central control, owing to the favorable attitude of the German Government and law courts and public opinion, is complete to give full power of direction.

In Austria the situation is nearly the same, so far as the extent and power of the combinations are concerned. On the other hand, there is more disapproval of the combinations on the part of the public, and three decisions of the courts made within the last three years, which render the contracts among the different parties to the combination nonenforceable, seem to have weakened in many respects the strength of the combinations within themselves. So far these decisions have produced little effect, but it is practically certain that if this attitude of the courts is not changed and if there is no new legislation the combinations will be likely to take on a new form in certain particulars.

In England the movement toward combination has not gone so far as in either Austria or Germany. There have been in earlier days very many local combinations to keep up prices, and in some cases these rings have proved very successful. Within the last three years, however, a very active movement toward the concentration of industry into large single corporations, quite after the form which has been common in the United States, may be observed. Nearly all of the feeling that one observes in England on this subject has reference to the later great corporations formed by the buying up of many different establishments in the same line of business, corporations that through combination have succeeded in acquiring in many particulars a good degree of monopolistic control.

In France one finds the movement toward combination much less pronounced than in any of the countries mentioned before. The reasons for this are perhaps two: First, France is less developed industrially than the other three countries, especially England and Germany,

and as French industry has not yet entered so much into international competition as have business men in other countries, the same pressure toward the savings and toward the added power that came from combination has not been felt. In the second place, the French criminal code is very severe against fraudulent or monopolistic attempts to control the market. This code was doubtless passed with reference to conditions entirely different from those now existing, but if a combination should apparently be able to increase prices, and should attempt to do so, its officers might be in danger of imprisonment. In consequence, while the movement toward combination is very evident, the managers of combinations are much less inclined to let their movements appear in public. It is also true beyond question that the combinations in France, with few exceptions, are less firm in their method of organization, much more being dependent upon mere verbal agreements.

The Forms of Combination.

The form which the combinations take in every country seems to be partly a result of the business habits of the country, partly a result of legislation or lack of legislation.

In practically all places the combinations start by simple agreements among different establishments to sell at a uniform price, or to make no effort to secure the patronage of the customers of one another, or—another manifestation of the same plan—to divide territory among themselves. In most instances, particularly if there are many members of the combination, it will be found that some are not faithfully living up to their agreements, and an effort is then made to secure a firmer union. Wherever the courts will hold an agreement for limiting product or uniform prices legal, the more natural and usual form is for the contracts to be put into writing, with a penalty for breach of contract.

In order to avoid the necessity of litigation it is very common for deposits of securities to be made by each participant of the agreement, with the understanding that if the contract is violated the deposit will be forfeited. If the laws of the country, however, as enforced by the courts, hold such contracts illegal and contrary to public policy, so that they cannot be enforced, the combinations are practically compelled to take some other form, such as that of a single corporation, as in the United States and of late in England, or else to accomplish the same result in some other way. If the agreement has to do particularly with the regulation of price and is not intended to affect materially the methods of manufacture, it is a common practice in France, in Germany and in Austria, as well as in other European countries, to organize a selling bureau for all of the establishments, and through the selling bureau, which in itself may be a separate corporation, to determine the extent of the output for each separate establishment and the price that shall be secured for goods. In such cases, of course, the books of the separate members of the combination are open to the selling bureau, and the work of the bureau is open to all of the members, so as to prevent fraud of every kind.

On the Continent of Europe it is very generally the case that these combinations regarding prices and output refer only to goods sold within the country, and do not apply to sales for export. It is possible to determine with a reasonable degree of exactness the quantity of goods of any kind that will be consumed at a price remunerative to the combinations within the country itself; that quantity is then fixed, and a steady, uniform price for the whole country may practically be established at rates not very oppressive to the consumers and at the same time profitable to the combination. Any additional spirit of enterprise on the part of any of the members has to seek its satisfaction in foreign trade.

Causes of Combination.

In practically all of the countries the causes for combination are substantially the same as those found in the United States. The first motive usually assigned is ruinous competition carried to so great an extent that practically all are losing money.

The desire for increasing profits, of course, is also satisfied more easily when great economies can be made, and it is generally found that by a combination savings of various sorts can be secured. It is to be noted, however, that in Austria, France and Germany, where the form of combination is largely that of simple agreements among different establishments, each one of which is managed independently, the savings that come from closing of the poorest establishments, from the better distribution of products among different establishments, &c., cannot well be secured, although those which come from lessened cost of selling are easily made. Members of syndicates in the cases mentioned do not hesitate to acknowledge that the form of combination into a single corporation is more advantageous in this respect than the form that is more common in their own country. They, however, attribute their hesitation to adopt the more complete form to the high taxation and the publicity to which corporations are subjected, and to the greater spirit of independence, as they claim, on the part of their manufacturers, who, they say, would not be willing to give up the power of independent management of their own establishments. It is probable, however, that they have not yet felt the pressure of necessity to so great an extent as has been the case with manufacturers in England and the United States on account of the unwillingness of the courts in those countries to enforce contracts that seem to be in restraint of trade.

Railroad Discriminations.

Industrial combinations seem to have been made throughout Europe with practically no aid through discriminating rates given by the railroads or other transportation agencies. It is true that in practically all countries at times special rates have been given to foster some special industry in certain sections of the country. Particularly is this true where the railroads are owned by the government, as in Prussia; but even there no discrimination is made between different shippers under similar conditions, and the rate is given rather as a bounty to encourage the development of the industry or to increase the export trade, instead of a certain amount paid out of the public treasury, as in several of the States of the Union, for example, to foster the beet sugar industry. It is possible that in one or two of the countries there have been slight discriminations made in individual cases, but this has been done so rarely that it may be said to be of no significance whatever.

The Tariff.

Protective tariffs do not seem to have been of special significance in the formation of industrial combinations in Europe, although in many cases the combination has been enabled to take advantage of the protective tariff in the way of securing higher prices. In free trade England the combination movement seems to have developed considerably further than in protectionist France; but, on the other hand, the movement toward combination has gone much further in extent in Austria and Germany, both protectionist countries, than in England, although in England the form of combination is generally more complete. Dr. Liefmann, in an article on combinations in England, expresses the opinion that the chief reason for the lesser development of monopolistic combinations in England and the continuance of severe competition in branches of industry in which in Germany there have existed for a long time very rigid combinations—for example, the coal industry—scribes the cause rather to the principle of extreme individualism in England, which has a much firmer hold among business men, in his judgment, than in Germany; and this appears, on the whole, to be the right conception.

On the other hand, there can be no doubt that the combinations at times make use of the tariff. In France, Germany and Austria the tariffs seem in general to have been levied with the idea of furnishing a sufficient protection against foreign competition without placing them much higher than was necessary to cover the normal difference in cost of production. The governments seem inclined to stand firmly by their protective policy, and there seems to be no very active propaganda hostile

to it. In consequence the combinations have no fear of the tariff being removed and their industry killed by foreign competition. The manufacturers, therefore, who are combined, as well as those who are outside of the combinations, expect, as they say, to use the advantage that has been given them by their Government as against foreign competitors. Herr Wittgenstein, the chief spirit in the organization and management of the Austrian iron combination, said a year or so ago that the Government having recognized the need of the iron industry for a tariff had levied it. The combination intended to meet these expectations by putting their prices as high as the tariff would under ordinary circumstances permit. Director Kestranek of the same combination takes the same position. But he goes further and urges that the Austrian Government ought to place its tariff rates still higher, so as to guard against attacks on the Austrian market by American combinations favored by their tariff. The competitive power of the foreigner, and not merely the difference in cost of production, ought to be the measure of the amount of protection needed.

One of the directors of the oil combination in Austria said lately, in the same frank way, that without their protective tariff the Standard Oil Company could probably drive them entirely out of business in Austria. The Government would certainly not permit their industry to be so ruined. With the protective tariff they placed their prices at such a rate that they were sure of making a fair profit in Austria; and, being secure of this profit, they had been able to make so much trouble for the Standard Oil Company in Germany and elsewhere that they had compelled that company to divide the markets, not merely of Germany, but also of two or three other countries, with them; a procedure which he claimed was to the advantage of Austria, inasmuch as it was making the Austrian oil industry more profitable than it could otherwise have been.

Likewise the managing director of one of the great iron combinations in France has stated that, if you wish to get his course of prices over a series of years, the simplest way is to take the English trade papers, get the London price of iron of similar grade throughout the period, and add to that the freight from England and the French tariff.

It should be noted in all of these cases that the manufacturers believed that without their tariff their entire industry would be ruined by foreign competition; that their tariff was in itself not unreasonable and did not permit them to take from their home consumers unreasonable profits; that, however, it did enable them to be perfectly sure of good profits and at times enabled them, in consequence, to enter foreign markets by making low prices there. In all of the cases it is probable that after the combination was made they could have stood some lowering of their tariff, and in consequence some lowering of their profits, without being driven out of business; but it seems also probable that in nearly all cases when in those countries protection is granted, an entire removal of the tariff would have curtailed, if it had not completely ruined, their business.

Wages.

It has been said that in certain cases it is probable that the desire to protect themselves somewhat against the attacks of the trade unions has been a reason why manufacturers have entered into combinations. On the other hand, it does not seem to be the case that any reduction in wages, speaking generally, has followed their organization, although in certain instances, as in that of traveling salesmen, the combinations have been able to dispense with the services of some workmen. Often since the combinations have been formed wages have been increased. In other cases wages throughout the different branches of the industry have been made more nearly uniform than they were while the establishments were under different managements; and generally, so far as one is able to learn, the process has been one rather of leveling up than of leveling down.

It is claimed also, notably perhaps in the case of the coal and iron industries in Continental Europe, that the combination has been enabled to secure a much steadier

output than was possible before the combinations were made. In consequence the number of workmen employed has remained much more nearly uniform and their employment much more nearly continuous than before. It may be that during times of special prosperity under the old system more mines would be opened and more men would be employed temporarily, only to be thrown out of employment completely whenever the demand slackened somewhat. During the last two years of prosperity, however, the German coal syndicate have increased their output more rapidly than their rivals have increased theirs. The managers of the combinations claim that their purpose is to keep their business steady, free as far as possible from the fluctuations which often arise under a competing system, and, in consequence, to secure for their workmen much steadier employment at uniform wages. The results, in the one or two industries mentioned at any rate, seem to show that they have to a considerable extent realized their expectations; and although there have been some complaints, on the whole the workmen seem to agree that these results have been attained. So far as can be learned, too, the leaders of some powerful unions have been in the main working in harmony with the managers of the combinations.

Prices.

Under other headings the subject of prices has been somewhat discussed. It will perhaps suffice to say here that the managers of the combination acknowledge that in many instances they have been enabled to secure prices somewhat higher than was possible under the system of ruinous competition which prevailed before the combination was made. Many special instances are given in the following chapters. Generally they claim that their prices have been more uniform than before. The managers of the coal syndicate in Western Germany say, for example, that during the period of the strongest demand for coal during the last two years, judging from earlier experience, they have held prices far lower than would have been the case under a system of free competition, believing that this policy was in the long run a wiser one. This plan would tend to prevent any crisis in the industry, with a corresponding depression following. In other lines of industry claims are made. Uniformity of prices or rates affording a secure profit seems to be the end sought for throughout Europe, openly avowed and to a reasonable extent attained. While there are certain savings which might possibly justify a reduction of price, these do not seem to be emphasized so much on the Continent as in either England or the United States, nor are claims of reduction in price so frequent.

As in the United States, so in Europe, complaints are frequently heard that the combinations sell for export at rates lower than domestic. The combinations do not deny the charge. They claim that they must do so if they are to export at all, and that the export business is necessary to keep their works running full time and their laborers employed. When the governments grant export bounties and the government railroads grant special low rates on export goods, we might expect that they would make no effort to conceal their low export price. Indeed, some of the combinations themselves give premiums on their goods exported.

Attitude of Governments Toward Industrial Combinations.

Industrial combinations in Europe do not seem to have awakened the hostility in any country that is met with in the United States.

In England one finds in the papers a little expression of fear of the newer large syndicates. The Government has taken no action whatever regarding them further than to pass, August 8, 1900, an amendment to the companies act, which provides for greater publicity regarding the promotion and the annual business of corporations than before.

In France there has been some complaint, especially against what is believed to be a combination on the part of the sugar refiners, but no general public movement. One or two cases, in the porcelain industry for one, have been brought by competitors against the syndicates, but

the decision of the judiciary was simply no cause for action. The complainant did not show any increase in price, and the fact that a decrease in price was likely to drive the complainant out of business did not seem to the Government a public menace.

In Austria, as has been said before, the courts have held that under a law of 1870 contracts for fixing prices were contrary to the public interest and were non-enforceable. There has been also much greater alarm apparently on the part of the public than in either England or France. Inquiries into the movement have been made by several chambers of commerce, notably those of Vienna and Prague. The Government instituted an inquiry some years ago, and in 1897 introduced a bill providing for satisfactory investigation and limitation of the action of these corporations in the sugar, petroleum, beer and spirits industries. The immediate cause of this movement was a financial one, the fear that these combinations, by raising prices, would lessen the consumption of the product, and thereby lessen the internal revenue tax which would be received by the treasury. The bill, however, was not passed. There is at present an inquiry on foot in the department of trade and commerce in Vienna. The committee investigating the question has reached two conclusions: First, the combinations should be recognized as juristic persons, and, second, they should be put under State control, with a good degree of publicity.

They have, however, not decided exactly what the nature of this control should be. In the bill introduced in 1897 the remedy for proved monopoly was to be merely complete publicity, though some power was given the ministry to forbid certain contracts in exceptional cases.

In Germany, where the movement has existed for a good many years and has been carried very far, there seems to be little popular sentiment against the combinations as a rule, but in certain localities there has been some activity. For example, during the last two years, since the price of coal has been high and the coal syndicate has refused to fill the orders of many manufacturers, much complaint has been heard and one or two inquiries have been set on foot by the chambers of commerce, particularly the Chamber of Commerce of Cologne. The coal syndicate claimed, as has been intimated, that they were furnishing all the coal that was needed for manufacturing purposes, but that the manufacturers wished to secure larger quantities for speculative purposes, and this did not seem to them to justify the opening of new mines, which would be a source of loss to them as soon as the extraordinary demand ceased. As a consequence presumably of this feeling the governments both of Prussia and of the German Empire have set on foot inquiries in their executive departments into this subject. They are collecting literature within the country and from foreign countries, and will possibly later make a more immediate inquiry on the ground.

On December 6, 1900, there was introduced into the Reichstag a resolution requesting the Imperial Chancellor to introduce a bill providing for governmental supervision over such combinations and syndicates as were shown to have assumed a monopolistic character. In response to a somewhat similar suggestion, made in the spring of 1899, the Prussian Minister for Trade and Industries took the position, in a speech in the House of Representatives, that the high price of coal was, under the circumstances, a normal one and that there was no reason for complaint. He even went so far as to say that up to that time, at any rate, he thought that no one had any ground for making any objections to the working of the syndicates. On the contrary, he declared that they had in general contributed toward making the course of prices as well as that of wages even more steady than they had been in earlier times, and added that he was convinced that if the syndicates did not exist they would have been much more severe upon industry and upon consumers, as well as upon wage earners. He took similar ground in the Reichstag and was supported by the other ministers.

The courts of Germany have taken the position that these agreements regarding output and prices, sanctioned by a penalty in order to check ruinous competition, are enforceable.

Legislation.

The legislation on the subject has already been indicated in part. In France the penal code provides a penalty of imprisonment and fine for coalition to raise or lower prices. This provision was, of course, made in earlier days and was not intended to be against modern syndicates, although it is believed that it would apply to them in certain instances.

No other country has any special provisions against syndicates. In England the corporation laws, as already explained, provide for a great degree of publicity in connection with promotion of corporations and their regular management.

There is a like degree of publicity for corporations in France, Germany and Austria, and in these latter countries there are such rigid provisions regarding the valuation of property, and reports of promoters and directors, that stock watering, in the ordinary sense of the expression as used in the United States, is almost, if not quite, an impossibility.

Conclusions.

On the whole, the experience of Europe would seem to justify the following conclusions:

1. There is, relatively speaking, little objection to combinations in Europe, and in some countries the Government and people seem to believe that they are needed to meet modern industrial conditions. They do believe that they should be carefully supervised by the Government and, if necessary, controlled.

2. There is little or no belief that the protective tariff is responsible for their existence. It is known that they at times use the tariff to keep their prices higher than would otherwise be possible, and that their export are often lower than their domestic prices.

3. Railroad discriminations have been practically abolished in Europe, and in consequence they have had no effect toward creating combinations.

4. The great degree of publicity in the organization of corporations has largely prevented the evils arising from stock watering, and has evidently had much effect in keeping prices steady and reasonable and in keeping wages steady and just.

5. There seems to be no inclination toward the passage of laws which shall attempt to kill the combinations. That is believed to be impossible and unwise. Laws should attempt only to control, and that apparently chiefly through publicity, though the Government may be given restrictive power in exceptional cases.

W. L. C.

The Jackson Iron & Tin Plate Company.—The Jackson Iron & Tin Plate Company of Clarksburg, W. Va., have drawn plans for their new building. The main building will be of steel construction, 110 feet wide and 336 feet long; boiler house, 38 x 60 feet; stock house, 40 x 80 feet; acid plant, 40 x 60 feet. In addition the company will erect a number of dwellings for their employees. The company are capitalized at \$300,000.

The Pope Tin Plate Company.—The Pope Tin Plate Company of Pittsburgh have applied for a charter under the laws of West Virginia, with a capital of \$500,000. The incorporators are Charles E. Pope, Frank B. Pope, E. W. Mudge and John F. Kraft, all of Pittsburgh. The new concern propose to build a tin plate plant, but their plans are not yet fully defined.

Nothing can give a more adequate idea of the immense advance in wealth and population that New York City has made since the early part of the last century than the remarkable difference in the values of real estate in the lower part of Manhattan Island 80 or 90 years ago and now. *Leslie's Weekly* quotes some figures in this connection which are of interest. For example, the Boreel property on lower Broadway, which was recently sold for \$2,500,000, changed hands in 1815 at a valuation of \$10,000, and other buildings in the same neighborhood, then assessed at a valuation of \$16,000, \$6000 and \$8000, are now rated at \$1,700,000, \$850,000, and \$350,000, respectively, showing increases in some cases of more than a hundredfold in value.

The Amalgamated Association.**Some Features of Its Constitution.**

It is of interest to quote some of the principal laws of the Amalgamated Association, taken from the constitution and general laws adopted as amended by the National Convention at Milwaukee, May, 1901, which will remain in force until August 1, 1902:

ARTICLE I.**NAME AND OBJECT.**

Section 1. This association shall be known as the National Amalgamated Association of Iron, Steel and Tin Workers of the United States, and shall be composed of all men working in and around rolling mills, tin mills, steel works, chain works, nail, tack, spike, bolt and nut factories, pipe mills, and all works run in connection with the same, except laborers, the latter to be admitted at the discretion of the subordinate lodge to which application is made for membership. Any person employed at any job controlled by this association shall be eligible to membership whether he be a stockholder or director.

Sec. 2. The object of this association shall be the elevation of the position of its members, the maintenance of the best interests of the association, and to obtain, by conciliation or by other means just and legal, a fair remuneration to members for their labor, and to afford mutual protection to members against broken contracts, obnoxious rules, unlawful discharge, or other system of injustice or oppression.

ARTICLE II.**NATIONAL JURISDICTION AND GENERAL OFFICE.**

Section 1. This association shall have supreme jurisdiction over the United States, in which there are at present, or may be hereafter, subordinate lodges located, and shall be the highest authority of the order within its jurisdiction, and without its sanction no lodge can exist, or any scale of prices be recognized in any mill except the regular adopted scale of wages of this association.

Sec. 2. The general office of the association shall be located in the city of Pittsburgh, Pa., and it shall be required that the president and secretary-treasurer of the national lodge reside in the city where the general office is located.

ARTICLE IV.**FORMATION OF SUB-LODGES AND REPRESENTATIVES.**

Section 1. Any sub-lodge composed of at least ten practical workmen, as provided in Section 1, Article 1, who are of good character and who are eligible to membership in this association, shall, after obtaining the approval of the vice-president of the district, and also of the national president, be entitled to a charter of the same, upon payment of \$25. Each member shall sign the constitution and comply with all the rules therein contained.

Sec. 2. After receiving said charter they shall also be entitled to a representation in the national convention as follows: A sub-lodge with less than 100 members shall be entitled to one representative. A sub-lodge with 125 members shall be entitled to two representatives, and one representative for each additional hundred, and every lodge must send its full quota of representatives.

Sec. 3. Each representative to the national convention shall be entitled to one vote, but cannot vote unless present at the meeting when the vote is taken.

ARTICLE V.**NATIONAL CONVENTION.**

Section 1. The national convention shall meet annually on the second Tuesday in April at 10 o'clock a.m., at such place as shall from time to time be designated by the preceding annual convention. A quorum for the transaction of business shall consist of one-fourth of the whole number of representatives elect.

Sec. 2. Prior to the assembling of the convention a programme of business shall be sent to each subordinate lodge by the secretary-treasurer of the national lodge, six weeks prior to the date appointed for the calling of the convention. The programme shall contain any sug-

gested alterations or amendments to the laws, and any that shall have been sent by sub-lodges under their seal to the secretary-treasurer of the national lodge, and any resolutions bearing upon questions of law or prices not contained in the programme shall not be entertained at the convention unless by consent of two-thirds of the delegates, except on base of scale.

ARTICLE VI.

REVENUE.

Section 1. The revenue of this association shall be derived as follows:

For organizing a subordinate lodge the sum of \$25 shall be charged, said sum to be paid at the time of organization. The supplies to be furnished a newly organized sub-lodge, which the organization fee of \$25 is intended to cover, shall be: One charter, 1 seal, 3 rituals, 25 constitutions, 25 working cards, 10 withdrawal cards and 8 quarterly report blanks. Additional supplies will be charged for as follows:

For issuing a duplicate charter (for one destroyed) to a subordinate lodge, \$5; remodeling an old seal, \$4.50; rituals, \$1 each; constitution and general laws, 5 cents each; quarterly report blanks, 5 cents each; scale of prices, 5 cents each; withdrawal cards, 5 cents each; working cards, 2½ cents each.

Sec. 2. In order to create a fund to meet the expenses of the national association, it shall be the duty of the president to assess a quarterly or per capita tax on the different subordinate lodges sufficient to defray the expenses of the national association.

Sec. 3. In order to create a fund for the support of victimized members or such members as may be engaged in legalized strikes, it shall be required that each member of the association shall pay to his lodge, for the protective fund, the sum of 20 cents per month. All moneys so received to be used only for the purpose specified.

Sec. 4. At the last stated meeting in each quarter the financial secretary of each lodge shall report to the lodge the correct number of members on his books taxable to the protective fund for the quarter, when an order shall be drawn on the treasurer for a sum equal to 60 cents for every member on the books thus reported by the financial secretary, and the sum thus drawn on the treasurer, together with the per capita tax, shall be given to the corresponding representative, who shall, as soon as possible, forward the same to the secretary-treasurer of the national lodge, who shall receipt therefor.

Sec. 5. When the amount in the national treasury is less than \$25,000, the president shall levy a special assessment of from 1 to 5 per cent. every four weeks, and to be continued until the national treasury contains \$25,000, and that all appeals for aid to members on strike must hereafter be sent through the national lodge, and that the strike benefits and donations from sub-lodges shall also be paid through the national office, all such donations received and paid out to be reported separately in the quarterly financial statement.

Sec. 6. Any member who is sick or out of employment during the period of one full month shall be exempt from paying the 20 cents per month to the protective fund until he recovers from his sickness or finds employment. But members out of employment must report the fact to their lodge at every regular meeting, or be charged with the 20 cents per month to the protective fund.

Sec. 7. All moneys due the national association shall be forwarded to the secretary-treasurer thereof by draft (on New York, Philadelphia or Pittsburgh), express, post office order or registered letter. For check sent on any bank, except in the city of Pittsburgh, 25 cents extra will be charged for collection.

ARTICLE X.

STRIKE BENEFITS.

Section 1. No sub-lodge under the jurisdiction of this association shall be permitted to enter into a strike unless authorized by the Executive Committee of the district.

Sec. 2. When the Executive Committee of a district find it necessary, in accordance with the laws of this association, to legalize a strike in any one department of a mill or works, it shall be required that the men of all

other departments shall also cease work until the difficulty is settled.

Sec. 3. When a strike has been legalized and the general office of the association has been properly notified of this fact in writing, the secretary-treasurer of the national lodge shall at once prepare a printed statement of the facts in the case, as near as possible, and forward the same, under the seal of the national lodge, to all sub-lodges, warning all true men to not accept work in such mills, shops or factories.

Sec. 4. Any subordinate lodge entering into a strike in the manner provided by the laws of this association, provided that the amount in the national treasury is not less than \$10,000, shall receive from the protective fund the sum of \$4 per week for each member actually engaged in the strike in the mill over which the lodge has jurisdiction, provided they remain in the locality of the strike, or notify the corresponding representative of that lodge of their location and their being unemployed each week while on strike, and have held membership in the association for six months, are not in arrears, and the lodge to which they belong is in good standing in the national association. Except a strike has been legalized three months prior to July 1, no benefits shall be paid to any member for any strike during the months of July and August. This section also applies to members who are standing turns in the mills on strike, and who hold no other situation except that of standing turns in that mill.

Sec. 5. That the vice-president of the district wherein said strike is legalized appoint, in conjunction with the corresponding representative, two responsible men, one to act as treasurer, the other as clerk. All moneys paid to be accounted for on official sheets, one to be kept for inspection of sub-lodge, one to be filled out and promptly returned to national office each time benefits are paid. If, upon investigation, it is found that benefits have been paid to a member not entitled to them, the lodge in which such member or members receiving such benefits held membership shall be held responsible for the amount thus paid, and said amount shall be charged up to the lodge.

Sec. 6. No member shall be entitled to strike benefits for the first two weeks while on a legalized strike. Payments of benefits shall date from the commencement of the fourth week after the strike has been legalized, and no benefits shall be allowed for the fractional part of the first week.

Sec. 7. A member who has been suspended or expelled shall not receive any strike benefits (whether engaged in a legalized strike or is victimized) until six months after he has been restored to membership.

Sec. 8. If any member or members, while receiving benefits from this association, shall work three or more days in one week at any job, either inside or outside of a mill or factory, he or they shall not be entitled to benefits for that week. And any member on the benefit list, either on strike or victimized, refusing to work a third turn in a week, with a view of securing his benefits, his name shall, if proven against him, be stricken from the benefit list. Members out of employment or idle for repairs when a strike takes place in one department of the mill (those that were idle previous to the commencement of said strike and were idle at the end of it) cannot be considered "on strike," nor entitled to strike benefits.

Sec. 9. No member or members of this association shall be entitled to strike benefits for a strike in any mill or factory in which he or they have the mere promise of a situation. That is to say, if a member has been promised a situation in a mill and said mill should go on strike before he began to work, he shall not be entitled to strike benefits during said strike.

Sec. 10. Any member engaged in a legalized strike, procuring a permanent situation elsewhere, forfeits his claim to strike benefits during the continuance of such strike.

Sec. 11. Strike benefits shall stop after the payment of the thirteenth week. Should, however, the exigency of the situation be such as in the opinion of the president to demand it, he, with the Board of Trustees, may, at the expiration of the thirteenth week, extend payment for four additional weeks. At the conclusion of the time

to which payment of benefits had been extended, if conditions are such as to clearly warrant it, further extensions of payment may be made, the length of time to which payment is extended to be determined at the time the order is given.

ARTICLE XI.

VICTIMIZED MEMBERS.

Section 1. Should any member or members of this association be discharged (victimized) from his or their employment for taking an active part in the affairs of this association, either as a member of the mill or conference committees, or for otherwise being active in promoting and guarding the interests of this association, such member or members shall use his or their best endeavors with the manager to be reinstated, and failing in this, he or they shall then and there report such case to the chairman of the Mill Committee, who shall at once proceed to investigate the case as set forth in Sections 2 and 3 of Article IX. Should the committee fail to get the brother or brothers reinstated, they shall then carry the case to the lodge in precisely the same manner as in cases where the whole mill is involved in difficulty, and in no case of individual discharge (except the Mill Committee have good grounds to believe that the brother is discharged for just cause) shall such job be declared vacant until the Executive Committee of the district has decided the case.

Sec. 2. Should the Executive Committee of the district, after deciding the brother victimized, deem the organization unable to sustain a strike for his reinstatement, he shall receive from the protective fund of the association \$6 per week for a period of eight weeks and no longer, except in extreme cases, when it shall be left discretionary with the president of the national lodge as to the length of time benefits shall be paid. If within the limit of the time (eight weeks) prescribed for the payment of victimized benefits a situation has been procured for him, either by himself or other members of the association, payment thereof shall immediately cease. The law applying to the payment of victimized benefits shall be the same as that governing the payment of strike benefits.

Sec. 3. If, upon investigation, it is found that victimized benefits have been paid a member not entitled to them, the lodge in which such member receiving benefits held membership shall be held responsible for the amount thus paid, and said amount shall be charged up to said lodge.

ARTICLE XVII.

GENERAL SPECIAL RULES.

Section 1. Every member shall interest himself, individually and collectively, in protecting his trade, and the business of all employers who recognize, negotiate and are under contracts with this association. This, however, shall not be construed to mean that a member can work for anything less than the regular adopted scale of prices, or in any other manner do what is detrimental to the established rules, customs, &c., of this association.

Sec. 2. Every member of this association is strictly prohibited from employing helpers at a boiling, puddling or heating furnace under the age of 15 years.

Sec. 3. When a roller or catcher leaves a job from any cause, the rest of the crew shall retain their positions.

Sec. 4. All iron rolled on sheet and tin mills required to be sheared shall be pulled up to the shearman's standing by the company, ready for shearing.

Sec. 5. That no member in any works shall render any assistance or loan his tools to any workman who persistently refuses to become a member of this association, or refuses to pay up his arrears in the same, or uses his influence to disorganize his fellow workmen and make it difficult to carry out the objects of this association.

Sec. 6. Any mill under the jurisdiction of this association running double or treble turn three or more months in the year shall be considered a double turn mill, and in the event of such mills going on a single turn the work shall be divided, night turn roller to receive an equal share of work at night turn roller's wages.

Sec. 7. Should any department of a mill working on

single, double or treble turn be stopped through overproduction or other causes, the work shall be equally divided, except when a furnace is out for repairs. It is, however, understood that any sub-lodge may, by a majority vote of those present, enact a law of their own to control the above subject. But such law should not be made when there is a grievance pending, and any person taking a job on conditions shall be branded as a "black-sheep."

Sec. 8. This association will not tolerate any man holding more than one job. One furnace single turn, one train of rolls double turn, one steel melting gas furnace one turn, to constitute one job, and all are expected to enforce this rule. Any man holding two or more separate jobs in violation of this section shall be stigmatized as a "black-sheep." By "two or more jobs" is meant where one man draws pay for two or more separate jobs at the same time. No person shall be allowed to work two or more consecutive turns at his job in a mill or factory when there are members out of employment, in the immediate vicinity, fully qualified to do the work.

Sec. 9. Any member known to go to his work drunk, or who shall lose any work through drunkenness, and the foreman of the mill discharges him, no steps shall be taken by his lodge to reinstate him in his work. Any member acting in a manner detrimental to the interests of, or that will bring reproach upon, this association or its members, shall be reprimanded, fined, suspended or expelled from the lodge in which he holds membership.

Sec. 10. The members of this association shall not injure each other in their employment, such as undermining or conniving at a member's job, when such member is known to be standing out for his rights and trying to obtain those privileges which properly belong to the members of this association. Any member taking a job in such a way shall become unworthy of membership and be expelled from the association. That no member of this association shall purchase tools or pay for any breakage that might occur in any mill. Any member being convicted of such shall become unworthy of membership and shall be expelled from this association.

Sec. 11. The several members of all lodges shall, as much as in their power, endeavor to establish and make permanent the same, and use all honorable exertions to secure employment for any member of this association in preference to all others. They shall also give a helping hand to each other in the works as much as it may be in their power to do so, and when it is the recognized time to start, at 5 or 9 o'clock, or any other regular stated starting time, and the crew starts after the regular time, they shall stop work at the regular quitting time. After the crew has started and for breakage or other cause they are stopped for one or more hours, they shall stop work at the end of eight hours from when they started.

Sec. 12. Except on questions of wages regulated by scale of prices, two weeks' notice shall be required from employers before a reduction can take place, and two weeks' notice shall be given when an advance is requested, and any rules agreed upon by the Mill or Factory Committee and company, and ratified by a two-thirds vote of the lodge, cannot be changed unless two weeks' notice has been given by either party.

Sec. 13. In voting on all questions involving the shutting down of a mill or factory for the purpose of sustaining a member who has been discharged, or for other causes, the written ballot shall be used.

Sec. 14. When it shall be found beyond a doubt that any member of this association, in any mill under its jurisdiction, is working below the prices established by it, the men in such mill shall cease to work until such prices are rectified.

Sec. 15. No member of this association shall be allowed to alter or change rules existing in any mill before submitting the desired change to the lodge having control of the department for which the change is intended; and if a majority of all members of the lodge vote in favor of said change the Mill Committee shall notify the superintendent of said change before the same goes into effect.

Sec. 16. Any member having worked at any of the

trades in iron or steel mills or factories shall not be termed green hands, provided they are members in good standing in this association.

Sec. 17. Any person employed as foreman, puddle boss, superintendent or general manager of any mill or factory, or holding any of the above positions, together with a situation in the mill or factory, shall not be eligible to membership in this association.

Sec. 18. That the members of this association shall, at the direction of the president of the national lodge, refuse to work in any mill or factory where the manager, superintendent, foreman or puddle boss is deriving a direct benefit from the furnace, rolls, &c., in addition to his position as above, for which he receives a regular salary.

Sec. 19. Should any member of this association undertake to instruct an unskilled workman in any of the trades represented in this association, it shall be the duty of the Mill Committee to notify him that this association cannot tolerate such proceedings, and should he still persist in doing so charges shall be preferred against him, and he shall be expelled or suspended, as the lodge may determine.

Sec. 20. In each mill under the jurisdiction of this association the company shall return to each tonnage man, as soon as the turn is weighed up, a complete report of work done, or have same put in a convenient place in the mill, and any members shall have the privilege of seeing their turns weighed if they so desire.

Sec. 21. Any member leaving a job to better his condition cannot claim his former job if he gets discharged or loses his new job on account of a shut down.

Sec. 22. All men are to have the privilege of hiring their own helpers without dictation from the management, and no member shall be permitted to discharge a helper except for just cause, nor shall a member reduce the wages of a helper during the scale year.

Sec. 23. Should one mill in a combine or trust have a difficulty, all mills in said combine or trust shall cease work until such grievance is settled.

Sec. 24. That any mill known to be continually violating the limit of output be considered "black" and their charter immediately revoked.

Sec. 25. That all steel, rod or sheet bar mills shall cease rolling not later than 5 p.m. on Saturdays and start at the usual hour.

Sec. 26. Any sub-lodge located in any city or town where there is now established or to be established a central labor union, trades council or labor league, or other central labor body, organized for the purpose of benefiting organized labor, such sub-lodge may elect one or more delegates to such central labor body on such terms as they may decide. The duties of said delegates shall be to look after the interest of their sub-lodge and its members, and the trade or craft governed by such lodge, make a report once each month, and perform such other duties as the lodge may require. They shall hold office for six months, and their dues shall be paid by sub-lodge to the central body, and shall be eligible to the office of corresponding representative.

ARTICLE XVIII.

SPECIAL RULES—BOILING, BAR AND FINISHING MILLS.

Section 1. When a vacancy occurs in the boiling department the oldest boiler, if he so desires, shall have the preference of the furnace so vacated. Five heats double turn and six heats single turn, and in mills working three turns five heats per turn shall constitute a day's work for boilers working common iron. The uniform charges for pig iron in a single boiling furnace shall not be more than 550 pounds per heat, but in neither case shall this apply to furnaces working castings; for a double boiling furnace the charge for pig iron shall not be more than 1100 pounds per heat; for a "twin" furnace (where there are two doors on one side only, close together) the charge for pig iron shall not be more than 1210 pounds per heat; for a Swindel furnace the charge shall not be more than 1430 pounds per heat; for a Siemens-Martin furnace not more than 1550 pounds per heat; for a double furnace not more than 2200 pounds per heat. Castings in a single boiling furnace shall not exceed 2750

pounds per turn on double turn and 3300 pounds on single turn, and 6600 pounds for double furnaces on single turn. The product of a single boiling furnace, working cast iron swarth, shall not exceed 3080 pounds per turn; a double boiling furnace 6120 pounds per turn and a double double boiling furnace 12,320 pounds per turn. The charge for scrap furnace on cinder bottoms shall not exceed 6600 pounds per turn for scrap, and not more than 3520 pounds per turn for one-third scrap and two-thirds swarth, and on sand bottom furnaces 10,000 pounds of scrap per turn. For fixing furnaces the men shall be given all the necessary pulverized ore the furnace requires. Mills using clay for blast doors, clay shall be in mill and in condition to use.

Sec. 2. Any iron worked in a boiling furnace taking more than one and three-quarters hours to make a heat shall be considered a grievance, which on demand of a majority of the members working hard iron the Mill Committee shall report to the boss, in accordance with Article X of the constitution; and if any time within 30 days from the expiration of the above notice the iron shall again be as bad as when the notice was given the Mill Committee shall report to the boss, and the night turn, if working double, shall finish their turn and they shall then cease work until they get better iron.

Sec. 3. If, upon investigation, any of the sub-lodges governing boiling departments are found to be allowing the violation of clause two of the footnotes of the boilers' scale or clause three of memoranda of agreement, a fine of \$20 shall be imposed, and suspension from all benefits or protection of the organization, if necessary, and the names of such lodges shall be published in the financial statement.

Sec. 4. A fine of \$5 shall be imposed on any boiler or puddler who is known to put in any "jams" or "cheeks," "back walls" or "bridges," with brick or fire clay, and upon proof thereof a fine of \$5, followed by suspension, shall be imposed upon any boiler who is known to violate this rule, and the names of such party or parties shall also be published in the financial statement. Such fines when imposed shall be collected from the member at the first regular meeting of his lodge succeeding the violation of this section. This section is not intended to prevent a puddler or boiler from putting a ball of fire clay in the jams, back walls or bridges during the week in order to keep his furnace working.

Sec. 5. Every member of this association is strictly prohibited from employing helpers at a boiling, puddling or heating furnace under the age of 15 years.

Sec. 6. Furnaces working piles on boards shall not be allowed to charge while drawing.

Sec. 7. A fine of \$5 shall be placed on hands on finishing mills who shall change pinions, crab, spindle or crab box.

Sec. 8. The vice-president of each district shall keep himself informed as to what the different mills turn out; and when he knows of any lodge allowing the overweight to be made that he inform the lodge that it must be stopped, and if they still allow it to be done that there be a fine imposed upon the lodge of \$25 for the first offense and \$50 for the second, and then if it be not stopped that the charter be taken from them. The member making the overweight shall be notified by the Mill Committee that he must live up to the scale and constitution, and if he still insists on turning out the overweight that he shall be fined not less than \$5 for the first offense, after he has been notified, and for the second \$10; and if he does not then stop he shall be expelled from the association, and will not be allowed to work again until he pays a reinstatement fee of \$10.

ARTICLE XIX.

SPECIAL RULES—SHEET AND JOBBING MILLS.

Section 1. All day hands on sheet and jobbing mills that are members of the association having any grievance shall present the same to the roller or manager, as the case may be, and if the trouble is not adjusted it shall be referred to the lodge, and if the lodge fails to settle the case it shall be referred to the vice-president of the district, and in case he cannot settle the difficulty he shall call the Executive Board together, and, in conjunc-

tion with the president of the national lodge, they shall render a decision in the case, which decision shall be final.

Sec. 2. Rollers on sheet mills shall be privileged to hire their own help.

Sec. 3. Where helpers are employed by heaters on sheet mills they shall be paid not less than \$2.50 per day on averaging mills and \$2.87 per day on all other mills.

ARTICLE XX.

SPECIAL RULES—TIN PLATE MILLS.

Section 1. When it is found that any crew has violated the limit of output for tin and black plate mills, as seen in scale, the lodge shall collect the equivalent of the overweight from roller and doubler, and an additional fine of 25 cents shall be imposed on the roller and doubler for each offense, Mill Committee to furnish the financial secretary with the amount of overweight in each particular case.

Sec. 2. Any tin roller or other member of his crew who shall clean grease, or shall change rolls or other castings, or assist in any form, shall be fined not less than \$5 nor more than \$25 for the first offense, and for the second offense shall be expelled from the association, unless such work be paid for.

Sec. 3. Any mill known to be continually violating the limit of output shall be considered "black" and their charter immediately revoked.

Sec. 4. In case the Mill Committee has any doubt about a turn of work, the said committee shall have power to count how many pairs are in said turn or work and report such turn to the lodge.

Sec. 5. Where roughers are employed on tin mills they shall receive not less than \$2.60 per turn; on mills working 26 inches wide and over they shall receive not less than \$3 per turn. Where doublers employ helpers they shall receive not less than \$2 per turn, his work to be limited to running the furnace and dragging down pairs. Where heaters employ helpers they shall receive not less than \$2.25 per turn.

ARTICLE XXI.

SPECIAL RULES—STEEL AND ROD MILLS.

Section 1. In case any steel mills agree with their company to work pending a settlement of their scale the employees of said mill shall receive their last year's scale of wages, until their new scale is agreed to and signed by both parties. A written agreement to this effect shall be drawn up and signed by both parties where work is done pending such settlement. In case the company refuse to agree to the above the mill shall cease work at the expiration of the old scale. In case of an advance in their new scale the same shall date from the expiration of their old scale. In case of a reduction the same shall date from the time the scale is signed.

ARTICLE XXII.

SCALE OF PRICES.

Section 1. Wherever practicable steps shall be taken to provide a scale of prices for every trade or calling in each district represented in this association, but no scale or price shall be considered by the Executive Committee or the convention unless the same has been first presented to and demanded of the firm.

Sec. 2. When it is found necessary that the scale of prices governing any department of a mill or factory needs revision such department shall submit in writing to their lodge the alterations desired in their scale, on or before the first meeting in the month of March. Each lodge shall then consider such desired changes and shall vote by written ballot thereon, and report the result in writing, under the seal of the lodge, to the general office of the association. No sub-lodge under the jurisdiction of this association, or member thereof, shall countenance the holding of meetings outside the lodge room for the purpose of agitating class legislation for advanced wages, and no lodge in this association shall receive or act on matter discussed, originated or in any manner acted upon outside of the association relative to class interests.

Sec. 3. When all desired alterations to the several scales are received at the general office from sub-lodges, which shall be on or before the third Tuesday in March.

the secretary-treasurer of the national lodge shall get the same printed in pamphlet form, together with the suggested amendments to the laws, and forward a copy thereof to every sub-lodge six weeks prior to the meeting of the next annual convention.

Sec. 4. The proposed alterations to the several scales and amendments to the general laws as compiled and sent to the sub-lodges by the secretary-treasurer of the national lodge shall then be discussed in each lodge, and the action of the lodge be given to the delegates of the lodge, who shall carry the same to the national convention.

Sec. 5. The suggestions pertaining to the scale of wages and contained in the programme of business shall be referred to the Wage Committee at the annual convention, and the president of the national lodge is empowered to call the Wage Committee together in the place designated for the meeting of the annual convention three or more days prior to the convening of the annual convention, at his discretion, for the purpose of considering the scale suggestions and preparing a report thereon for the annual convention.

Sec. 6. In order to aid the Wage Committee in their work the corresponding representative of each lodge must send to the general office, two weeks prior to the meeting of the committee, a statement giving the condition of their mill, the amount of work done the last year, the feeling of the members of the lodge regarding wages for the next year, stocks in hand, if any, and what kind, and other information that will aid the committee and convention in arriving at proper understanding on the wage question, and any corresponding representative failing to comply with the provisions of this section shall be fined in the sum of \$2 and his sub-lodge shall be notified of the same.

Sec. 7. To change the basis of any scale it will require a two-thirds vote of all the delegates present at the annual convention.

Sec. 8. In iron rail, steel rail and converting mills, all departments in said mills shall have their several scales expire on June 30; and when it is found necessary that the scale of prices governing any departments of such mills need revising, such departments shall submit, in writing, to their lodge, the alterations desired in their scale on or before the first stated meeting in March. Each sub-lodge directly interested in such scales shall then consider such proposed change at the first stated meeting in April, at which a vote shall be taken by written ballot, requiring a two-thirds majority to adopt, and if the committee appointed by the lodge fail to agree with the company, the case shall be referred to the Executive Committee of the district for final action. All tonnage men working in large steel mills, working rails or soft steel billets, with an average output of 300 tons or more, 12 hours, shall operate three turns of eight hours each.

Sec. 9. Unless the scale is signed in conference, three copies shall be sent out by the secretary-treasurer of the national lodge, and when signed one shall be kept by the firm, one by the lodge and the third be sent to the general office of the association.

Sec. 10. The scale, unless signed in conference, shall be presented to the manufacturers for signature by members of the Mill Committee representing each department one week prior to July 1, the commencement of the scale year, and notice shall be given by them that unless the scale of prices be signed on or before June 30, all departments of the mill and factory will cease work after the night turn has finished its turn, provided they start to work before 12 p.m., except roll turners and engineers.

Sec. 11. Where there are two or more lodges working for the same firm and in the same plant agreement on scales must be made by joint committee, and that one lodge or one department shall not be permitted to sign a contract or scale until the other departments have agreed, when the scale or contract shall be signed jointly, excepting when agreement is provided for by conference with manufacturers collectively.

Sec. 12. When a stock of muck bar is on hand and the company do not wish to boil iron, the finishing mill shall run on after the scale is signed. But when

ready to boil every man shall receive his own job; if he does not, the mill men shall cease work until he does.

ARTICLE XXVIII.

APPLICATION FOR MEMBERSHIP.

Section 1. Candidates for membership to sub-lodges shall be proposed by a member of the lodge in good standing, which proposition shall be made in writing, entered on the records, and referred to a committee, whose duty it shall be to inquire and report in writing, at the next stated meeting of the lodge, as to the fitness of the candidate for membership. Candidates for membership working by the day or hour in steel mills shall apply to the lodge composed of men working by the day or hour in such mills, if one is in existence, and no lodge composed of tonnage men shall receive application from such men in such mills. The recording secretary shall read the report of the committee, and if it is favorable the candidate shall be balloted for, and if all the balls are white he shall be declared elected, but if two or more black balls appear against him his case shall be referred to a special committee for investigation; and should the persons casting the black balls refuse or neglect to give their reasons for so doing to the special committee for the space of two weeks, and should the special committee themselves find no just cause for his rejection, they shall report favorable to his election, whereupon he shall again be balloted for, and if two-thirds of the votes cast be favorable, he shall be declared elected, but if more than one-third be unfavorable, he shall be declared rejected. Should either committee report unfavorable, they shall state their reason for so doing, and the lodge shall then receive or reject said reasons by a majority vote. Membership shall date from time of initiation, admission by card or reinstatement, and dues, fines and other moneys shall be charged accordingly.

Sec. 2. It shall be the duty of the corresponding representative to notify the general office of the rejection of a candidate, and a person who has been rejected in any lodge shall not be proposed for membership in any other lodge for the space of six months thereafter. And should the candidate apply to any other lodge for membership after the expiration of six months, it shall be the duty of such lodge to instruct their corresponding representative to inquire of the sub-lodge that rejected the candidate the cause of such rejection.

Sec. 3. The member who shall propose a candidate for membership, shall, at the time of making the proposition, pay to the secretary one-half the amount of the initiation fee, which shall be returned in case the candidate is rejected. Should the candidate be elected, he shall be admitted on payment of the balance of his initiation fee and signing the constitution.

Sec. 4. Should the candidate neglect or refuse to appear and be initiated for the term of one month after receiving notice of his election, unless prevented by sickness or other unavoidable occurrence, he shall forfeit his claim to membership, together with the amount paid at the time of his application.

ARTICLE XXIX.

DUES AND OTHER MONEYS.

Section 1. Each member of a sub-lodge shall pay as initiation fee not less than \$1, and such sums as monthly dues as the lodge shall determine, together with fines and other moneys. The due card shall be sufficient notice of his arrears, and any member omitting to pay the same within three months shall be reported to the lodge by the financial secretary, whereupon the president shall, unless otherwise directed by the lodge, declare such member suspended.

Sec. 2. A member suspended for non-payment of dues shall not be restored to membership except he apply in writing; the said application shall then be referred to a committee, whose duty it shall be to investigate his character and fitness for membership and report their opinion in writing at a subsequent meeting of the lodge, whereupon a ballot shall be had, and if a majority of the ballots sustain the committee, it shall be recorded as the judgment of the lodge, and any member thus reinstated shall pay such sum as the lodge may determine.

Sec. 3. A member feeling incapable by some unavoidable cause to pay dues, fines and other moneys, shall re-

port his cause to the lodge, who may exempt him from paying the same by a two-thirds majority.

Sec. 4. Any lodge having charged any member full dues and accounts shall forward the required amounts to national office.

ARTICLE XXX.

MEMBERS IN ARREARS.

Section 1. Any member of a subordinate lodge three months in arrears shall not be recognized by the Mill Committee in any grievance in which he may become involved during such arrears, even though he pay up his arrearages immediately before or after the trouble arises.

ARTICLE XXXIV.

MILL COMMITTEES AND THEIR DUTIES.

Section 1. Each sub-lodge shall have a Mill Committee consisting of three members, on each turn, from each department represented in the lodge, and any member in good standing in the lodge, and holding a job in the mill where the lodge exists, can be appointed on the Mill Committee, whether at the meeting or not, provided he is 21 years of age, and has been a member of this association one year, and all excuses from serving on said committee must be granted by a two-thirds vote of the lodge. This law shall not apply to newly organized lodges where the members have not held membership for one year.

Sec. 2. It shall be the duty of said committee to superintend and guard the interests of the association in their several departments, and any member found guilty of interfering, abusing or insulting a member of the committee while in the discharge of his duties shall be fined \$5 for the first offense, and for the second offense he shall be expelled from the lodge. When it becomes apparent that any advantage is being taken of our laws or any member of this association, and the committee of the department where this occurs has failed to adjust the difficulty with the manager of the works, after using all honorable means to bring about a settlement, they shall immediately call a joint meeting of the respective lodges, and all members of each lodge working in that mill shall be notified by the Mill Committee to attend same.

Sec. 3. At said special meeting the grievance pending shall be explicitly stated by the members of the committee, and if the joint meeting consider the grievance sufficient, the corresponding representative of the lodge having the grievance shall, by instructions of his lodge, under their seal and in no other manner, notify the vice-president of the district, and work shall continue until the vice-president has investigated the case.

Sec. 4. The communication sent to the vice-president, as set forth in Section 3, shall in turn be sent to the general office of this association by the vice-presidents as a guarantee that the sub-lodge has complied with the law prior to the vice-president going to investigate the case.

Sec. 5. In mills or factories where the manager, superintendent, foreman or boss absolutely refuse to recognize the Mill Committee in the settlement of any difficulty in which this association is interested, the committee shall immediately call a special meeting as set forth in Section 2 of this article, and carry out the instructions as laid down in Section 3.

Sec. 6. That in each works the Mill Committee shall wait on each new workman, when employed, and ask him for his withdrawal card. They shall deliver the same to the secretary. But if he has not got a withdrawal card, and is not a member of this association, steps shall be taken to persuade him to join it. They shall carefully watch, and attend to any complaint that may suddenly arise in the works, or any other matter affecting the interests of the members. And when it is found that a manager, superintendent or foreman is using his or their influence in persuading men in the mills or factories not to join their association they shall severally be notified by the Mill or Factory Committee that such action must be stopped.

Sec. 7. Should any member of this association undertake to instruct an unskilled workman in any of the trades represented in this association, it shall be the duty of the Mill Committee to notify him that this association

cannot tolerate such proceedings, and should he still persist in doing so, charges shall be preferred against him and he shall be expelled or suspended, as the lodge may determine.

ARTICLE XXXV.

DISHONORABLE MEMBERS.

Section 1. Any member robbing or embezzling from a brother member, or leaving a brother in debt with intent to defraud, by not giving proper notice of his departure, or has been fraudulently receiving or misapplying the funds of the association, or the money of any member or candidate, intrusted to him for the payment of the same, or by divulging any of the proceedings of the lodge, or who has slandered any brother member, or advocated division of the funds or separation of lodge districts, or by acting contrary to the established rules of this association on any question affecting the price of labor, or the system of working in the district, if opposed to the interests of his fellow workmen in keeping with the rules of this association, shall, upon trial and conviction thereof, be punished by fine, suspension or expulsion, as may be determined by two-thirds of the members present.

Sec. 2. Members expelled from a subordinate lodge shall remain expelled for six months, when they may renew their connection with this association on application, in writing, to, and on such conditions as may be agreed upon by, the lodge to which they formerly belonged. But should the applicant for reinstatement consider the sum demanded exorbitant (or should the lodge refuse to reinstate him for any sum), and the lodge persistently refuses to reinstate him, the Advisory Board of the national lodge shall, upon application by the person or persons asking for reinstatement, have power to grant such applicant a card for an amount to be determined by said board, and should any sub-lodge, within 30 days after receiving notice from the Advisory Board of the amount determined upon by them to be charged for reinstatement, fail to reinstate such person and grant him or them a card, the president of the national lodge shall issue such card to the person or persons asking reinstatement, collect the amount determined upon by the Advisory Board and turn it over to the lodge, and no member shall refuse to work with such person or persons while their case is pending. In all cases, however, where a person applies to the Advisory Board for a card, the sub-lodge refusing to grant the same shall be heard in evidence before the board.

Sec. 3. Should any member of this association undertake to instruct an unskilled workman in any of the trades represented in this association, it shall be the duty of the Mill Committee to notify him that this association cannot tolerate such proceedings, and should he still persist in doing so, charges shall be preferred against him and he shall be expelled or suspended, as the lodge may determine.

ARTICLE XXXVI.

CARDS.

Section 1. This National Association shall issue a due card, a working card and also a withdrawal card, which shall bear the seal of the local lodge, and shall be in possession of the secretary thereof. He shall distribute them per order of subordinate lodges, for the use of any member in good standing, and no subordinate lodge shall have authority to grant or receive any other card but those provided by this National Association.

Sec. 2. All members shall provide themselves with a due card, also working card, which will be issued at the end of each quarter on payment of all fines, dues and assessments, said card to be produced at the request of the Mill Committee, and such members shall be entitled to all benefits of this association.

Sec. 3. Any person referred to or mentioned in Section 1, Article 1, must, unless a reasonable excuse is given, produce a working card before they be allowed to work; and those not members, who have situations, shall be given four weeks' time to join, and the president of the sub-lodge shall see that this section is enforced.

Sec. 4. Any member of this association going from one locality to another shall provide himself with a withdrawal card. Said card shall bear a certificate of membership from subordinate lodge, with a date of initiation,

admission by card or reinstatement, and also a certificate of such lodge membership in the National Association; and any member obtaining such card must present the same for membership in any other lodge, except the holder of such card works by the day or hour in steel mills, in which case such cards shall be deposited in the lodge composed of men working by the day or hour in said mill (if one be in existence) and no subordinate lodge shall have power to reject said card. No member shall be entitled to receive a withdrawal card unless he is in good standing and clear on the secretary's books.

Sec. 5. Withdrawal cards shall not be dated for more than one month in advance, and any sub-lodge issuing cards for a longer period shall refund to the member to whom said card is granted all money paid in excess of one month's dues.

Sec. 6. Any member removing from one locality to another and obtaining a situation must deposit his card in the lodge which controls the mill wherein he works, and all cards not deposited within four weeks thereafter shall be annulled.

Sec. 7. Where there are two or more lodges in one mill controlling the same branch of business, a member who holds membership in any of these lodges shall have a right to demand his withdrawal card from the lodge in which he holds membership, but he must deposit the same in one of the other lodges situated in the same mill, controlling his branch of business.

Sec. 8. Members holding withdrawal cards and not depositing them as provided in Section 4 of this article (knowing the existence of a lodge in the locality where they reside or work) shall pay to the lodge in which said card is deposited such fine as said lodge may deem proper to inflict; also dues from the time said card became annulled until it was accepted by the lodge.

Sec. 9. The secretary-treasurer of the National Association shall attach the seal thereof to all cards before forwarding them to subordinate lodges; and all cards granted by any subordinate lodge shall be signed by the subordinate lodge president and financial secretary, and receive the seal of said lodge.

Sec. 10. Any member retiring from the trades represented in this association shall make application for an honorary card at the next stated meeting of his lodge, which shall be granted. Should he at any time desire to deposit said card in any subordinate lodge, the president thereof shall appoint a committee of three to investigate his conduct toward the order and its members during the time he held such card, and if the committee report favorable, a ballot shall be taken, and by a majority vote the applicant shall be admitted to membership. But, if the committee report unfavorable, then a ballot shall be taken, and unless two-thirds of the members vote in favor of his admission the president shall reject the card.

The Hartman Mfg. Company.—In regard to press reports that large rod, wire and nail mills would be built at New Castle, Pa., by the Hartman Mfg. Company of Ellwood City, Pa., we may state that this concern have bought the building formerly occupied by the New Castle Tube Company, and also about 10 acres of ground. This building is about 750 feet long and will contain the wire and nail mills. It is the intention of the Hartman Mfg. Company of Ellwood City to build a basic open hearth steel plant and rod mills, and also materially increase their present capacity for the manufacture of wire, wire nails and wire fencing of all kinds. The concern will remove their present works from Ellwood City to New Castle just as soon as this can be done, thus concentrating the entire works, from basic open hearth steel plant to finished material, at one place. The business of the Hartman Mfg. Company of Ellwood City in the manufacture of fencing, wire and nails has steadily grown and it has been found absolutely necessary to provide larger facilities for taking care of their increasing trade. We may also note that the Hartman Mfg. Company of Ellwood City will apply for a charter of incorporation with a capital of \$2,500,000. It is said that the rod mills to be erected will have a daily capacity of 350 tons, and the concern expect to make from 3000 to 4000 kegs of nails daily. A part of the rod output will be sold in the open market.

The Iron Age

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DAVID WILLIAMS COMPANY,	-	-	-	-	-	PUBLISHERS.
CHARLES KIRCHHOFF,	-	-	-	-	-	EDITOR.
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JOHN S. KING,	-	-	-	-	-	BUSINESS MANAGER.

Supplies of Money.

Some comment has been made lately on the arrival of gold from the Klondike and its influence on business. It is believed that the receipts this season will amount to \$25,000,000, and while it would be a mistake to suppose that that sum has been added to the wealth of the world, it is true enough that the shipment of that amount of gold to this point would affect the money supply. A good many miners and mine owners have learned that it costs more than a dollar to get a dollar's weight of gold out of the earth. Other gold hunters are more fortunate, but the amount that gold mining adds to the wealth of the community is very much less than the output of gold. It is also a fact that \$25,000,000 worth of gold is not worth any more than \$25,000,000 worth of steel, but the possessor of the gold knows that he can get \$25,000,000 in legal tender money for it, and the owner of the steel may be in a little state of uncertainty as to its actual value to him until he has marketed it under all the competitive conditions of buying and selling.

New York does not furnish all the capital that is consumed in the process of mining in the Klondike, and if all the product comes here the net advantage is largely on the side of this monetary center.

A more important prospective addition to our monetary supply is that which must come from Europe in payment for cotton, provisions and breadstuffs. Of course the great bulk of that money must go to the parts of the country where these things are produced, but the supply of money in this and other financial centers depends in great measure upon the abundance of money in the agricultural regions. Europe is not likely to buy less cotton and provisions than usual, and will certainly buy more wheat than usual, and in spite of the fact that our corn crop will be less than last year it is not unlikely that Europe will buy as much of our corn as usual, and pay more for it. Our oats threaten to be a short crop, but American oats have for the first time made their appearance in Bohemia, easily underselling the local product. English financial papers have already remarked that Germans were selling American securities in anticipation of being obliged to spend an unusual amount of money for food.

The Treasury statement shows on August 1 more than \$100,000,000 in circulation in excess of the amount a year ago. The increase includes about \$56,000,000 in gold and nearly \$36,000,000 in national bank notes. This is exclusive of the amount of money in the Treasury. In spite of the elimination of a considerable amount of Spanish war taxes, the revenue is in excess of the expenditures, a condition which has not occurred before at this season of the year for 15 years. This would threaten a considerable contraction of the currency by taking into the Treasury more than is paid out, but the Secretary has been all along buying bonds, on terms favorable to the Government, which has released some of the surplus, and his action in previous years indicates that he will increase such disbursements and the deposit of public money in national bank depositories, so

far as measures of that sort may be deemed necessary. The amount of money in the Treasury is vastly in excess of any needs and may lead to further reductions of taxation next winter.

War Being Declared on Trades Unions.

It is not surprising that recent developments have caused numerous employers to assume an aggressive attitude against labor organizations. An attempt which originated in the West is now being made to unite employers in all branches of industries in a compact organization, not only to combat the demands of labor organizations, but also to prevent employees from hereafter becoming members of trades unions. The leaders in this movement are understood to be men controlling large interests, who have hitherto endeavored in every way to meet the reasonable requirements of labor organizations, and who have persistently maintained friendly relations with them in the hope of being able to adjust all differences without strikes or interruptions to manufacturing operations. They have become profoundly dissatisfied with the manner in which certain of these organizations are conducted, agreements being so frequently violated when the leaders or members of the unions feel disposed to ignore them. They believe that the time has come when war should be declared on the whole scheme of organizing workmen into unions.

Employers are undoubtedly having strong provocation to cut loose absolutely from the recognition of trades unions. Perhaps in no previous year have manufacturers been harassed to so great an extent by the repudiation of agreements, which when made were supposed to insure immunity from the interruption of operations by labor troubles. Hence a movement against all trades union is a natural development of the situation. It is not believed, however, that the projectors will be able to secure in the proposed employers' organization the overwhelming strength which is necessary for the success of such a scheme. The plan proposed appears to be too radical in its purpose to suit the new conditions which have grown up in the industrial world in recent years. Labor organizations seem to be inevitable. A labor union may for a time be completely destroyed in a particular establishment or a certain branch of industry, in which an issue has been raised, and the resulting fight caused their defeat and destruction, but ultimately another organization is likely to spring up and the employers may not know that it is in process of formation until its existence develops at an opportune time. Individual employers can be found who have always opposed the recognition of labor organizations in their establishments and they probably never will recognize them as long as they continue in control of the business. Strong characters such as these will pursue their own purposes and direct affairs in their own way, no matter what conditions may surround them. The majority, however, will prefer to follow a method which may seem to conduce to the preservation of peaceful relations and to avoid the possibility of serious controversies with their workmen, if this appears likely to be best accomplished through an agreement with labor organizations. They will not be inclined to assist in a movement which will keep them in a condition of unceasing vigilance, endeavoring to guard against the introduction of unionism in their works.

Whatever may be said in the nature of censure against labor leaders for breaking solemn agreements, it must be admitted that as a rule these agreements are respected and their provisions are duly enforced. A striking example of good faith in this respect is the at-

itude of President Martin Fox of the Iron Molders' Union of North America and his executive board, who are standing firmly against the action of a large section of their own members in Chicago, who have struck in defiance of their superior officers. Over and over have strikes started by local workmen for fancied grievances been overruled by superior officers which would otherwise have subjected the employers concerned to serious inconvenience. In certain important branches of industry labor organizations are strongly favored by employers, whose products compete with those turned out by much larger establishments, employing many more men. These smaller employers are supporters of such organizations because the wages agreed upon are uniform in the industry, and consequently they are placed on a position of equality in cost of production with their larger competitors. They believe that if this was not the case, and if labor organizations were completely wiped out, the large establishments would be able to make special terms with the men employed which it would be difficult for the smaller employers to secure.

The most serious criticism of labor organizations is caused by the possibility that they may be drawn into sympathetic strikes, or that the constant efforts of leaders to make their services seem exceedingly valuable may lead them to devise measures which will restrict production or too greatly curtail hours of labor, so as to handicap employers against other competitors who are not so hampered. These features of labor organizations are matters which should be attacked vigorously and opposed unflinchingly by employers. The field on which industrial forces operate will always have some of the features of a battle ground, and these are the matters which will be the most frequent subject of contention. It will be such matters that will be fought out and not the more radical question of whether or not trades unions shall be permitted to exist.

The Standardizing of Electrical Equipment.

We have now reached a point in the second stage of electrical development in this country which is fairly comparable to that reached in steam engineering a quarter of a century ago. The era of discovery and invention, in which electrical science progressed by leaps and bounds through a development so rapid as to be bewildering, seems to have come to an end. Perhaps this is more apparent than real. No doubt just as much investigation and experiment are now in progress as at any time since Edison began his work in the field of multiplex telegraphy, and every crude idea he ventured to communicate to a waiting world was a matter of greater international interest than matters connected with the policy of governments. The quadruplex telegraph, the telephone, the dynamo, the electric light, the storage battery, the electro motor, the X-ray and wireless telegraphy followed one another in such startling rapidity of succession that only the expert could intelligently keep pace with a progress which seemed to constitute one continuous "fairy tale of science" destined never to come to an end. What great and revolutionary discoveries in this boundless field remain to be made is at best a matter of conjecture.

During the past five or six years capital has offered very little encouragement to the inventor seeking electrical novelties, but a great deal to the patient and highly skilled mechanic who has been engaged in the task of making practical the brilliant discoveries which when announced possessed every quality of value except utility from the viewpoint of the investor. As the result the

progress during this period has been largely in lines of work for which the inventor is rarely fitted—that of standardizing apparatus and making systems commercially practical. In consequence of this attention to details, in which the mechanic rather than the electrician has had the more important task, every part of the apparatus needed for an electrical installation has been so nearly standardized that every requirement within the present state of the art can be met from stock or made from existing patterns and templets without experimentation. For example, an inquiry into the practicability of changing the motive power of the railroads entering and leaving the city of New York by the Park avenue tunnel of the New York Central & Hudson River Railroad from steam to electricity lately revealed the fact that more than one concern in the electrical supply business was ready to furnish everything needed as quickly as it could be turned out, and that for the entire equipment it would probably be unnecessary to make one new drawing or construct one new pattern. Some original work would doubtless be needed in installation, owing to the fact that the problems of the Grand Central switch yard are a little different from those existing anywhere else; but to meet these conditions involves merely adaptation of the kind which would construct a bridge of peculiar form without necessitating the rolling of new sections or the making of new forms in structural steel. In this standardization of electrical apparatus is found the secret of an electrical development so rapid and generally profitable that for some years to come it promises to overshadow every other department of business enterprise identified with the internal development of the country.

One feature of the change in electrical installations which is in the highest sense typical of the mechanical progress in adaptation of which we have spoken is noted in the gradual passing of the isolated light and power plants and their replacement by central stations. The introduction of the alternating system, immensely extending the area of profitable distribution, has changed all the conditions of public lighting and effected economies so important that only under exceptional conditions can the isolated small plant hold its own and make a profit for its owners. In the matter of power currents the important results attending the development of great water powers are more familiar to the general reader. Most of the original isolated light and power stations were in a sense experimental. The plant was bought where it could be had cheapest, and much of it was of the variety which is best described under the general designation of "cats and dogs." Gradually the introduction of improved types of high speed engines and dynamos displaced from the market the cruder productions of the pioneer equipment companies, and superior industrial organization cheapened the cost of apparatus to a point at which competition in a small way in their production was no longer profitable. This narrowing of the field of the business to a few strong, well organized and well managed concerns, capitalized on a scale permitting them to undertake complete installations of any magnitude, facilitated the standardization of everything needed in lighting and power plants, and put both departments of electrical enterprise on a business basis impossible of attainment in the days when every maker of apparatus was a law unto himself.

A fact which is not quite generally appreciated by those engaged in mechanical and similar pursuits is that the monopoly granted by patents for inventions is becoming more valuable. The consumption of all articles,

due to the very rapid growth in the population and in the industrial strength of this country, makes controlling patents more and more capable of producing a larger revenue. As we expand our export trade in manufactures even consumers in distant countries can be made to pay tribute. We know of instances where recent improvements upon epoch making older inventions have fetched more money than the original inventor ever dreamt of securing.

The Machinists in Chicago.

CHICAGO, ILL., August 14, 1901.—(By Telegraph.)—The machinists' strike is practically at an end in this city, with the exception of the Fraser-Chalmers & Gates Iron Works plants of the Allis-Chalmers Company's Works, where desperate efforts are being made by the strikers to prevent these plants from being operated. We are informed that the International Association of Machinists have officially decided to direct all their efforts toward the prevention of work in the above named plants and also in the works of the International Steam Pump Company of New York City. The Milwaukee, Scranton, Wilkes-Barre and Buffalo plants of the Allis-Chalmers Company's Works are working with a full complement of men, the Milwaukee plant turning away last week 150 machinists, as their shop was full and no more men were required. The action of the International Association of Machinists in thus singling out and combining their entire power to prevent the operation of these plants is certainly difficult to understand. Locally the Metal Trades Association have taken the strike in hand. They have adopted the policy so successfully used by the National Foundrymen's Association and are making successful efforts to secure workmen, having placed over 100 machinists at work during the past week. They are advertising for machinists and are offering 27½ cents per hour and 10 cents per hour bonus for periods agreed on between them and the machinists employed. The situation is now localized to the plants above mentioned, and the manufacturers say it is only a question of a few days when everything will be running smoothly.

The Carnegie Sheet Steel Company.

Some Pittsburgh capitalists have organized the Carnegie Sheet Steel Company, and will build a plant at that place for the manufacture of sheets. It will probably be a four-mill plant, and work is to be pushed as fast as possible. The directors of the new company are Robert G. Gillespie, W. H. Skivington, D. R. Torrence, Joseph R. Paull and T. Bissell Everson. Some of these parties are connected with the Carnegie Tube Company, who are building a tube mill at Carnegie.

The Iowa Iron & Steel Company.—The Iowa Iron & Steel Company, 1216 Holland Building, St. Louis, Mo., have incorporated, with a capital stock of \$1,000,000, to absorb the Waukan Iron Company of Waukan, Iowa, who own large brown hematite iron ore deposits at the latter place, and whose plant has a capacity of 30 tons of ore per hour. The company have secured an undertaking for the transfer to them of a now idle blast furnace plant of 400 tons capacity on the Mississippi River bank at St. Louis, and they have under consideration the erection of one or more furnaces for the production of charcoal iron. The directors have not yet been chosen. W. Ingram is secretary *pro tem*.

A Crucible Combine.—It is again reported that efforts to combine the manufacturers of black lead or plumbago crucibles in the United States, are being made. This is the third attempt that has been made in the last year or so, the former ones being failures. It is now said that options have been secured on all of the plants, with one exception, and a conditional agreement has been made with that company.

The American Boiler Manufacturers' Association.

Thirteenth Annual Convention.

The American Boiler Manufacturers' Association of the United States and Canada are holding their thirteenth annual convention in Buffalo this week. The officers of the association, under whose direction the proceedings of this convention have been conducted, are as follows:

President, Richard Hammond, Buffalo, N. Y.
Secretary, J. D. Farasey, Cleveland, Ohio.
Treasurer, Joseph Wangler, St. Louis, Mo.
First vice-president, J. Don Smith, Charleston, S. C.
Second vice-president, M. S. Weidener, Chattanooga, Tenn.
Third vice-president, Clifford M. Tudor, Cincinnati, Ohio.
Fourth vice-president, James Morrison, Pittsburgh.
Fifth vice-president, Wm. J. McAleenan, Peoria, Ill.

The local committee having in charge the arrangements for the convention and the entertainment of those in attendance consists of Richard Hammond of the Lake Erie Boiler Works, chairman; C. M. Farrar and George Trefts of the Farrar & Trefts Boiler Works; J. H. Howard and T. Roberts of the Howard & Roberts Boiler Works; Hamilton Johnson of the Riter Bros. Company, D. J. Champion of the Champion Rivet Company, F. B. Case of the Hoopes & Townsend Company, W. H. Bate-man of the Lukens Iron & Steel Company, W. J. Duntley and Charles Smith of the Chicago Pneumatic Tool Company, T. Guilford Smith of the Carnegie Steel Company, Charles Shults and George N. Riley of the National Tube Company, Warren J. Hill and T. F. Rowland of the Continental Iron Works, J. L. Whittet of Whittet, Barrett & Co., Eugene McCarthy of Beals & Co. and M. F. Hammond, secretary. The committee collected a fund, provided a bountiful series of entertainments for the members and visitors and their ladies, and printed a most satisfactory programme, worthy of preservation as a souvenir of the occasion. The entertainment consisted of visits to the Pan-American Exposition and some of its special attractions, a theater party, an excursion to Niagara Falls and a banquet at the Hotel Iroquois, the convention headquarters.

First Session.

The opening session on Monday morning found an excellent representation of the members in attendance. President Hammond introduced Mayor Conrad Diehl of Buffalo, who eloquently welcomed the convention to the exposition city. John P. Norton and T. Guilford Smith spoke in behalf of the local committee, Mr. Smith specially portraying the beauties of the exposition. Col. E. D. Meier of St. Louis responded for the members, paying a strong tribute to the steam boiler, which has made possible the present high development of civilization, and dwelling on the beneficial results accomplished by the educational work of the association. President Hammond concluded the formal opening exercises as follows:

It is not necessary for me to state at this time the vast amount of benefit which has been gained by the users of steam boilers, and by the manufacturers of material used in steam boiler construction, as well as the steam engineering profession, by using the standards for material and rules for construction of steam boilers, which, after much labor and patient research, have been adopted by the American Boiler Manufacturers' Association. By the use of these standards of material and construction high steam pressures are now being carried on boilers with absolute safety to life and property. Although the members of this association have not been greatly benefited, they feel that they have been amply rewarded by elevating the steam boiler manufacturing industry of this country to the front rank in steam engineering, and we propose to keep it there.

Formal announcements were made by Secretary Farasey of the entertainment of the afternoon, and the convention adjourned until Tuesday morning.

Following is a list of the boiler manufacturers as registered up to Tuesday morning:

John O'Brien John O'Brien Boiler Works, St. Louis.
W. F. Cole and W. C. McBride, R. D. Cole Mfg. Company, Newnan, Ga.

W. L. Spiegel, W. W. Stewart and T. J. Nicoll, McIlvane & Spiegel Boiler Works, Cincinnati.
 Joseph F. Wangler, St. Louis.
 Thomas M. Rees, James Rees & Son Company, Pittsburgh.
 E. D. Meier, Heine Safety Boiler Company, New York.
 Richard H. Bate, Wm. G. Bate & Son, Conshohocken, Pa.
 James Lappan, James Lappan Mfg. Company, Pittsburgh.
 J. B. Campbell, McNeil Boiler Works, Akron, Ohio.
 Geo. H. Connor, Philadelphia.
 E. N. Squiers, Dunning Boiler Works, Geneva, N. Y.
 H. J. Hartley, Wm. Cramp & Sons, Philadelphia.
 Samuel Borger, Borger Bros. & Co., Columbus, Ohio.
 E. A. Magee, U. S. Navy, Brooklyn, N. Y.
 Wm. A. Brunner, Tippet & Wood, Phillipsburg, N. J.
 J. Don Smith, Valk & Murdock Iron Works, Charleston, S. C.
 James M. Robinson, Atlantic Works, Boston.
 H. H. Newton and George Trefts, Farrar & Trefts, Buffalo.
 John S. Gregory, McNeil Boiler Works, Chicago.
 J. D. Farasey, H. E. Teachout Boiler Works, Cleveland, Ohio.
 Hamilton Johnson and Charles Riter, Riter Boiler Works, Buffalo.
 Richard Hammond, M. F. Hammond and J. W. Hammond, Lake Erie Boiler Works, Buffalo.
 E. J. Codd and Charles P. Codd, E. J. Codd & Co., Baltimore, Md.
 Fred. Gronet, Grouet & Co., Sandusky, Ohio.
 D. Connelly, D. Connelly & Co., Cleveland, Ohio.
 Clifford M. Tudor, Tudor Boiler Works, Cincinnati, Ohio.
 H. S. Russell, Pittsfield, Mass.
 Henry J. Ostenlock, Tippen & Wood, Easton, Pa.
 D. Grupe, Davenport Boiler Works, Davenport, Iowa.
 J. J. Main, Canadian Heine Boiler Company, Toronto, Canada.
 Richard Reeves, Marine Boiler Works, Toledo, Ohio.
 A. B. Hambleton, American Shipbuilding Company, Cleveland, Ohio.
 C. L. Munroe and Robert Munroe, Jr., R. Munroe & Son, Pittsburgh.
 S. Severance, Pittsburgh.
 C. H. Haupt, Atlantic Refining Company, Philadelphia.
 T. E. Tucker, Gem City Boiler Works, Dayton, Ohio.
 J. E. Carnahan, West Virginia Boiler Works, Pittsburgh.
 Geo. Rudge, Jr., Enterprise Boiler Works, Youngstown, Ohio.
 Lieut.-Com. D. P. Jones, chief engineer U. S. Navy, Pittsburgh.
 A. H. Kemper, Brownell & Co., Dayton, Ohio.
 A. Harrison, John Mohr & Sons, Chicago.
 F. J. Waters, chief engineer Board of Education, Chicago.
 James Morrison, Smoky City Boiler Works, Pittsburgh.
 Wm. Drake, Springfield, Ill.
 Stevenson Taylor, Fletcher & Co., Hoboken, N. J.
 J. M. Schofield, J. S. Schofield, Sons & Co., Macon, Ga.
 J. R. Vance, Geneva, N. Y.

Tuesday Morning's Session.

Announcement was made that the report of the Executive Committee would be submitted at an executive session of the association to be held on Wednesday afternoon.

Secretary Farasey read his report, showing a total membership of 77 firms. A slight decrease had occurred during the year, the number dropped from the rolls for nonpayment of dues exceeding the new members received. The receipts of the year, including balance on hand, were \$1555.80. The expenditures were \$1174.91, leaving a balance in the treasury of \$381.81.

The president appointed Messrs. Riley, Lappan and O'Brien a committee to audit the accounts of the association. The president also appointed a committee to select a time and place for the next meeting, consisting of Messrs. Hartley, Riley and Borger.

Reports of standing committees were called for. Chairman Hartley of the Committee on Materials stated that the subject had been so thoroughly treated in previous years that they had nothing further to add at this meeting. Chairman Lappan of the Committee on the Betterment of the Business Conditions of the Members of the Association stated that it had been impossible to get the members of his committee together, owing to the active condition of trade during the year. The secretary reported for the Committee on Membership that no practical method had been found for increasing the growth of the association better than the individual action of the members, and urged every one present to use his best efforts to bring other boiler makers into the organization.

J. Don Smith, chairman of the Committee on Topical Questions, submitted the following list of such questions for discussion:

1. *Power*.—Which is the better plan, to run a boiler plant by shafting and belts from a central power or by separate motors?

2. *Furnaces*.—a. Best form of annealing furnace. b. Best and most convenient style of rivet furnace.

3. *Flanging and Calking*.—a. What is the thickest steel plate it is safe to flange cold? b. What is the effect on the plate when so flanged? c. How thick plates can be calked with pneumatic tools?

4. *Rod Joints*.—When through brace rods are used, what is the best way to make joint between washer and head?

5. *Spark Arresters*.—a. Most efficient style of spark arrester. b. Effect of arresters on draft.

6. *Corrugated Furnaces*.—Give best mode of setting furnaces up after being placed in heads.

7. *Care of Boiler*.—How should boilers be left when lying idle, say, months at a time?

The report was adopted and the questions were ordered to be discussed as occasion offered.

Lieut.-Com. D. P. Jones of the Navy Department was introduced to the convention, having been officially designated by the Department to participate in and make a report on the proceedings. Major Magee, a retired officer of the navy, was also called upon and made a few remarks.

Thomas M. Rees of Pittsburgh brought up a most important question for consideration, going at length into the rules for inspection of marine boilers, such as the spacing and size of rivets, the size of legs connecting with steam drums, the place for the inspection of plates used in repairs, &c., and asked for proper action to be taken by the association. The subject brought out interesting experiences in United States Government boiler inspection by a number of the members, showing the desirability of a revision of the rules of the Board of Supervising Inspectors of the Treasury Department. Mr. Rees read an invitation received from the board to appear before them in February for the purpose of pointing out defects in existing rules and amendments desired to secure uniformity in inspection in all districts. The discussion of this question was conducted by Messrs. Lappan, Hartley, Morrison, Meier, Robinson and Main.

A motion by Colonel Meier was adopted that the matter be referred for proper action to the Committee on Uniform Boiler Specifications and that the president add to the committee two prominent manufacturers of marine boilers. This committee consists of E. D. Meier, H. J. Hartley, Jos. Wagner, James Mitchell, Thompson Kingsford and J. B. Campbell, with two to be added later.

The president appointed Richard H. Bate, H. J. Hartley and George Trefts a Committee on Nomination of Officers.

The convention adjourned until Wednesday morning.

Wednesday's Proceedings.

BUFFALO, N. Y., August 14, 1901.—(By Telegraph).—At the opening of Wednesday morning session the death was announced during the past week of P. J. Walsh of Augusta, Ga., and the president appointed E. D. Meier, George N. Riley, James Lappan and J. F. Casey a committee to prepare suitable resolutions, which were subsequently reported and adopted.

Topical questions were taken up, an exceedingly interested discussion taking place relative to the construction of annealing and riveting furnaces. The experience of numerous members was given, showing that many furnaces now in use are not satisfactory. Messrs. Main of Toronto, Connelly of Cleveland and President Hammond described furnaces which they had found very efficient, and expressed their willingness to furnish drawings for the use of their fellow members.

Chairman Bates of the Committee on Nomination of Officers reported the following list, which was accepted by the convention, all being unanimously elected:

President, Richard Hammond, Buffalo.
 Secretary, J. D. Farasey, Cleveland.
 Treasurer, Joseph Wangler, St. Louis.
 First vice-president, John O'Brien, St. Louis.
 Second vice-president, R. Munroe, Jr., Pittsburgh.
 Third vice-president, Samuel Borger, Columbus, Ohio.
 Fourth vice-president, J. M. Robinson, Boston.

Chairman Hartley of the Committee on Place of Next Meeting reported the selection of Atlantic City, N. J.,

the time to be left to the decision of the local membership, and the report was adopted.

A resolution indorsing the St. Louis World's Fair, and naming that city as the meeting place in 1903, was referred to next year's convention. H. J. Hartley read a paper showing the great progress made in the art of boiler making. The convention adjourned to meet in executive session at 2 p. m.

Outside the Convention.

The representation of interests allied to the boiler manufacturers was quite large, comprising manufacturers of plates, rivets and boiler makers' supplies generally.

Joseph T. Ryerson & Son of Chicago had an interesting exhibit in one of the parlors of the Iroquois Hotel. In this exhibit were working models of the Lennox slitting and bevel shears, a large display of Little Giant pneumatic riveters, chippers, calkers and drills, a Champion forge, specimens of the McGregor steel boiler brace, and a large collection of framed photographs of Morrison corrugated furnaces, Hillis & Jones' power tools, R. D. Wood & Co.'s hydraulic tools, and views of the large Ryerson warehouse and its various departments in Chicago. All visitors were favored with canes made of Shelby seamless steel tubing. The firm were represented by T. H. Russell, R. R. Shuman, L. M. Henoch and T. J. Corbett.

The Chicago Pneumatic Tool Company had a large corps of representatives in attendance, consisting of W. O. Duntley, H. S. Hunter, C. T. Smith, Thomas Aldcorn, C. E. Walker and G. W. Boyer.

Other attendants in this line comprised David Lennox, Lennox Machine Company, Marshalltown, Iowa; Thomas Bennett, Burden Iron Company, Troy, N. Y.; A. G. Hollingshead and R. T. Mickle, Philadelphia Pneumatic Tool Company, Philadelphia; C. H. Starr, Cleveland Pneumatic Tool Company, Cleveland, Ohio; George N. Riley and Charles Shultz, National Tube Company, Pittsburgh; D. J. Champion, Champion Rivet Company, Cleveland, Ohio; J. B. Myers, Spang-Chalfant Company, Pittsburgh; A. K. Ashworth, Pittsburgh Gauge & Supply Company, Philadelphia; T. Guilford Smith and T. C. Deming, Carnegie Steel Company, Buffalo; W. H. Bateman and H. S. Hunter, Lukens Iron & Steel Company, Coatesville, Pa.; C. H. Starr, Cleveland Pneumatic Tool Company, Cleveland, Ohio; A. T. Collins, Crucible Steel Company of America, Buffalo; Christopher Murphy, Christopher Murphy & Co., Chicago; A. M. Castle, A. M. Castle & Co., Chicago; M. W. Reid, Oil Well Supply Company, Oswego, N. Y.; Robert I. Clegg, *Iron Trade Review*, Cleveland, Ohio; Geo. W. Cope, *The Iron Age*, Chicago.

PERSONAL.

Thomas Guy Blood of Birmingham, England, has returned home after a brief pleasure tour in this country.

C. W. Hunt, for some years with the Youngstown Specialty & Mfg. Company, at Youngstown, Ohio, who were taken over by the American Can Company, has gone to San Francisco, Cal., to take charge of the Western plants of that concern.

J. S. Ousler, who resigned recently as superintendent of the blast furnaces of the National Steel Company at Youngstown, has been appointed superintendent of the furnaces of the same concern at New Castle.

Thomas Woods has been made assistant general manager of the order and shipping department of the Carnegie Steel Company.

Prof. Thomas M. Dick of Brooklyn, N. Y., has been elected to fill the chair of mechanical engineering at the State Agricultural and Mechanical College, Raleigh, N. C.

Frank C. Lewis, Western manager for Howe, Brown & Co., Limited, Chicago, resigned his connection with that firm on July 1 and is now Western manager for the Colonial Steel Company of Pittsburgh. The Western warehouse will be in Chicago, where a large stock of crucible tool steel and open hearth steel will be carried. The Colonial Steel Company will have a large

capacity and fully expect to have steel on the market early in November.

The Strike of the Steel Workers.

The strike order issued last week by President Shaffer of the Amalgamated Association is supposed to have gone into effect Saturday night, but not more than a half dozen mills are idle that were not closed down before the strike order was issued. As intimated in these columns last week would be the case, the number of men who obeyed the strike order is surprisingly small, and showed the weakness of the Amalgamated in mills where it claimed to be strong. The Amalgamated employees of the Bay View, Joliet and South Chicago mills of the Federal Steel Company held a meeting and decided by a large vote to continue at work. All kinds of persuasion were tried to get them to come out, but without avail, and they have had the courage to stand up and declare that they will not violate the contract which they have signed.

The Tube Mill Situation.

The claim was made by the Amalgamated leaders that they had lodges organized in a number of the mills of the National Tube Company and would close down most of the plants of that concern. These were idle threats, however, as the only tube mill owned by the National Tube Company that is closed down by the men going on strike is the Riverside works at Benwood. This plant is idle in nearly all departments. In addition the Boston rolling mills at Riverton, the Elba works in Pittsburgh, the McKeesport rolling mill in McKeesport and the Republic mill in Pittsburgh, all being skelp mills owned by the National Tube Company, are idle. This will, of course, cripple the National Tube Company in their supply of skelp, and if the strike continues this concern may have to close down some of their finishing mills. Report has it that the United States Steel Corporation will go ahead with the plans for a big tube mill at Conneaut, which were under way by the Carnegie Steel Company but abandoned when that concern were taken over by the United States Steel Corporation. There are also reports that the National Tube Works at McKeesport may be removed to Conneaut on account of hostility of labor and city officials, but this is untrue. No such action has been contemplated. All the other tube mills of the National Tube Company are unorganized and are therefore not affected by the strike, and are running to full capacity.

The Sheet Mills.

The situation in the sheet mills has not undergone material change since last week. All the nonunion mills of the American Sheet Steel Company in the Kiskiminetas Valley—namely, Leechburg, Saltsburg, Vandergrift, Old Meadow, Apollo, Scottsdale and Hyde Park—are running to full capacity, and enable the American Sheet Steel Company, in connection with the Wellsville works, to turn out fully 65 per cent. of their capacity in sheets. There has been some talk of the Wood works at McKeesport being dismantled and taken to Vandergrift, and while this may have been contemplated, it is believed the strike will be ended in a short time, making such a step unnecessary. It is a fact, however, that the officials of the United States Steel Corporation are much chagrined at the attitude assumed by the city officials in McKeesport since the strike started, and will not likely extend their works in that city until they have more encouragement to do so. Prices of sheets have advanced very rapidly and No. 28 has sold at 3.75 to 4 cents for prompt delivery.

The Hoop and Bar Mills.

Not much effort has been made by the American Steel Hoop Company to get their idle mills started, that concern preferring to wait until the weather is cooler and the men have had a good rest, when they will be more likely to be in a mood to go to work. In the Pittsburgh district the Clark mill is running to part capacity, but the Lindsay & McCutcheon and Painter mills are still idle. Decisive action will likely be taken by this

company in two or three weeks, with a view of getting their idle mills started.

The Tin Plate Mills.

No attempt has as yet been made by the American Tin Plate Company to start their mills, all of which are idle with the exception of the Monessen works. This plant continues to run full, and with so much success that the officials of the American Tin Plate Company have about decided to very much enlarge the capacity of the plant, and in addition will likely remove several other plants to Monessen. One of the plants that is likely to be taken there is the Beaver works at Lisbon, Ohio. The American Tin Plate Company are importing a large quantity of black plate from the other side, which will be distributed among three or four works and dipped. The members of the International Protective Association of Tin Plate Workers are to vote this week, on whether they will work up this black plate, and the impression is they will agree to do so. There is not the best of feeling between the Association of Tin Plate Workers and the Amalgamated Association, and it is not believed the former will go out of its way to serve the interests of the latter.

An urgent plea for financial assistance has been sent out by the Amalgamated Association. When the strike started the claim was made by the Amalgamated Association that it had plenty of money in the treasury to carry on a long strike, and that it would not even be necessary to assess the members to pay strike benefits. That these claims were not borne out by the actual facts in the case is shown by the call issued, asking the public to contribute money to support men in idleness who have no real grievance and who are on a strike for an imaginary cause in preference to being steadily employed at high wages.

Regardless of how long the strike lasts, it can be set down as a certainty that the United States Steel Corporation will refuse to recognize as an organization the men who have violated their contracts. This means that in the future all the mills of the American Steel Hoop Company, the American Sheet Steel Company and the American Tin Plate Company will likely be run with nonunion men.

PITTSBURGH, PA., August 14, 1901.—(By Telegraph.)—The employees of the blast furnaces in the Mahoning and Shenango valleys met on Tuesday night and decided that they would not go out on strike to help the Amalgamated Association in their fight. This will further weaken the cause of the Amalgamated Association. They had counted on the support of the blast furnace workers, and expected to be able to shut down some of the furnaces and cripple the United States Steel Corporation in their supply of iron.

The Chartiers Works of the American Sheet Steel Company, at Carnegie, were opened yesterday, and the men given an opportunity to go back to work, which they refused, and the mill will be removed to Vandergrift.

The mill was first built in 1884, but has been remodeled a number of times. It contains five sheet mills, and is a very complete plant.

Other than the above there have been no important developments in the strike this morning. Some of the men at the lower union mills of the Carnegie Steel Company did not show up for work this morning, but their places were quickly filled, and the whole plant is on in full. A few more men have also gone out at the National Tube Works, at McKeesport, but the plant is still running and to nearly full capacity.

The Painter mill was opened to-day, two trains of rolls being started.

The Crescent plant of the American Tin Plate Company, at Cleveland, resumed operations as a nonunion mill, one-half the trains being put into operation.

The plant of the National Tube Company is practically idle, the tube mill being crippled by the strike of the butt-weld boys in the mill.

In Chicago and Milwaukee meetings have been called of the local lodges of the Amalgamated Association, which may lead to a reconsideration of the vote to keep their contracts with the steel company.

Trade Publications.

Merchant and Agricultural Shapes.—The Inland Steel Company, Marquette Building, Chicago, have just issued a fine catalogue, illustrated in colors, showing sections of small angles, zees, tees, channel flats, cultivator beams, harrow bars, harrow channels, plow channels, plow beams, harrow teeth and other special shapes used in the agricultural trade. The catalogue also contains the standard steel classification and tables showing weights of flat, round and square steel in pounds per foot, with other interesting information. Attention is further called to the indestructible posts made of angle steel with a terra cotta base, manufactured by this company. Their works are located at Chicago Heights, a short distance from Chicago. A view of the works forms a neat frontispiece for the catalogue.

Gas Plants for Power and Metallurgical Work.—A very interesting pamphlet has been issued by the Loomis & Pettibone Company of 52 Broadway, New York, descriptive of the installations which they have made of the Loomis gas generator. Among these is the gas power plant with electrical distribution at the Moctesuma Copper Company, Nacosari, Mexico; at the Detroit Copper Company, Morenci, A. T.; at the National Tube Works, Middletown, Ohio; at the John Russell Cutlery Company, Turner's Falls, Mass., and at other localities.

Nuts, Washers and Bars.—The Milton Mfg. Company of Milton, Pa., have issued a catalogue and price-list of their line of manufactures, which includes wrought iron and steel washers, cast washers, hot pressed nuts, cold pressed nuts, cold punched nuts, collars, machine bolts, blank bolts, lag screws, carriage bolts, bar iron, bands, forgings and hammered shafting.

A. L. Dawson & Co., 27 to 31 West Washington street, Chicago, have issued an illustrated circular, calling attention to bargains in new and second-hand laundry machinery, which they have in stock. The list is extensive, comprising not only a great variety of such machinery, but a good range of sizes of each machine. Machines of various makes are also offered.

OBITUARY.

PATRICK WALSH, senior member of the firm of Walsh & Widener, boiler manufacturers, of Chattanooga, Tenn., died August 9 at his home in that city.

JAMES VERNER, a pioneer manufacturer of Pittsburgh, died on August 8 at the home of his son in that city at the ripe age of 83 years. He was born at Monongahela City, Pa., but lived during most of his life in Pittsburgh, where he engaged in a number of industrial and commercial enterprises. Mr. Verner organized the Pittsburgh Forge & Iron Company, of which he was the president for several years and a director at the time of his death.

JOSHUA DEAN, one of the most prominent business men of East Bridgewater, Mass., died on August 9, aged 71 years. He was born in Mansfield, Mass., and moved to East Bridgewater in 1870, where he purchased the Old Colony Foundry. This business Mr. Dean conducted up to the time of his death. He was also interested in a number of other local enterprises, and had represented his district in the State Legislature.

HENRY SMITH, a member of the firm of Theodore Smith & Brother, iron founders, of Jersey City, N. J., died on August 10 after a long illness, at the age of 51 years.

JOHN APPLIN, for 30 years superintendent of the mechanical department of the Walker & Pratt Mfg. Company's foundry, at Watertown, Mass., died on August 10 at his home in Newton, aged 72 years. He was born in Swanzey, N. H., and went to Boston when 18 years old, where he learned the trade of a mechanical engineer. Entering the United States arsenal at Watertown, he became superintendent of the mechanical construction department. In 1871 Mr. Applin left the arsenal to enter the employ of Walker & Pratt.

German Syndicates.

Steel Rails.

Recently the German rail syndicate has been strengthened by the accession of the Lothringer Hoch. W. Aumetz-La Paix, the Rombacher Huetten Werke and the Akt. Gesell. f. Ku. E. Industrie Differdingen-Dannenbaum, carrying the membership up to 24 concerns. It includes the following:

Friedr. Krupp, Essen.
Bochumer Verein, Bochum.
Union, Dortmund.
Gutehoffnungshuette, Oberhausen.
Hoerder B. wu. H. V., Hoerde.
Georges-Marien B. wu. H. V., Osnabrueck.
Rheinische Stahlwerke, Ruhrort.
Phoenix, Laar bei Ruhrort.
E. u. S. W. Hoesch, Dortmund.
Aachener H. A. V., Rothe Erde bei Aachen.
Gesell. f. Stahl Industrie, Bochum.
Westfaelische Stahlwerke, Bochum.
Ver. Koenigs u. Laura Huette, Berlin.
Koenigin Marien Huette, Cainsdorf.
Oberschlesische Eisenb. B. A. G., Friedenshuette.
Gebrueder Stumm, Neunkirchen.
Luxemburger B. W. u. Saarbruecker E. H. Burbacher Huette.
De Wendel & Co., Hayingen.
Gebrueder Roehling, Voelklingen.
Eisenwerk Kraemer, St. Ingbert.
Eisen H. A. Verein, Dudelingen.

Besides these arrangements have been made with the following concerns not to bid on State contracts:

Gussstahlwerk Witten, Witten.
Maximilians W. A. G., Rosenberg.
Gussstahlw. Doehlen, Doehlen.
Hseder Huette, Gross-Isede.
Peiner Walzwerk, Peine.
Gewerkschaft Deutscher Kaiser, Bruckhausen.

The syndicate has endeavored to hold prices at 120 marks per metric ton for the domestic market.

Plates.

The following are the members of the plate syndicate, with their participation:

West German Group.

Thyssen & Co., Muelheim.....	1,111
Duisburger E. u. S. W., Duisburg.....	705
Hoerder B. W. u. H. V., Hoerde.....	705
Gutehoffnungshuette, Oberhausen.....	705
Gewerkschaft Grillo, Funke & Co., Schalke.....	667
Friedr. Krupp, Essen.....	563
Duesseldorfer R. u. E. W., Duesseldorf-Oberbilk.....	512
Union A. G. f. B. E. u. S. I., Dortmund.....	426
Oberbilk Blechwalzwerk, Duesseldorf-Oberbilk.....	365
Phoenix, Laar bei Ruhrort.....	350
Gussstahlwerk Witten, Witten.....	330
Geissweiler Eisenwerke, Geissweil.....	315
Ph. Weber, G. m. C. H., Dortmund.....	300
B. u. H. A. G. Friedenshuette, Wehbach-Kirchen.....	275
A. G. Bremerhuette, Weidenau.....	239
A. G. Christinenhuette, Meggen.....	239
Peter Harkort & Sohn, Wetter.....	152

Southern Group.

Ak. G. Dillinger Huette, Dillingen.....	700
Ph. Weber, G. m. C. H., Hostenbach.....	300

Eastern Group.

Ver. Koenigs und Laura Huette, Berlin.....	512
A. Borsig, Borsigwerke.....	365
Oberschlesische E. B. A. G., Friedenshuette.....	360
Bismarck Huette A. G., Bismarckhuette.....	310
Lauchhammer, vor. Einsiedel, Lauchhammer.....	239

A special arrangement has been made with De Wendel & Co. of Hayingen, under which they agree not to cut prices, so that now only smaller mills are outside of the syndicate. The syndicate has been extended to the middle of 1904. The syndicate permits members to sell lots up to 5 tons direct at an extra price of 5 marks above the base price. Since April, 1901, the syndicate made special concessions to those customers who agree to purchase exclusively from the syndicate and who deposit a forfeit.

Enameled Ware.

The manufacturers of enameled ware have been getting closer together. Since July 1, 1900, there is a common selling agency, of which the following firms are members: Eisen H. W. Thale, A. G.; Emaille W. u. Metall F., Silesia; Eisen W. Marienhuette, St. u. E. W. Carl Thiel u. Soehne; Wuppermann & Co., and Mosdiel u. Zimmermann. This selling bureau, which has its headquarters at Berlin under the title of Verkaufs-Bureau Vereinigter Emaille Werke, has made arrangements

with a considerable number of outside firms and has formed a syndicate with the Austrian combination, known as the A. G. der Emaille Werke und Metal Waaren Fabriken Austria, at Vienna. Both together have established at Berlin the Export Bureau Continental Emaille Werke, which is handled by a board consisting of Hubert Claus, Berlin; Julius Ritter v. Rink, Vienna; L. A. Lohnstein of the Laender Bank, Vienna; H. Thiel, Luebeck, and S. Winkler, Berlin.

Armor Plate Tests.

Two successful tests of armor plate, one for the battle ship "Maine" and the other for a Russian vessel, were conducted at the Indian Head Proving Grounds on Friday last, in the presence of American and Russian naval representatives. The first armor tested was a 6-inch Krupp plate, representing the first group of such armor manufactured by the Bethlehem Steel Company for the new battle ship. Three shots were fired from a 6-inch gun at a velocity of 1900 feet per second. All the projectiles were broken on impact. The plate showed a very high resisting quality, and proved equal to any ever tested at the proving grounds. As a result of the test the group of armor, representing about 400 tons designed for the "Maine," which is now building at Cramps' in Philadelphia, will be shipped there immediately.

The Russian test was of a 10-inch Krupp plate manufactured by the Bethlehem Company for the Russian Government, representing a group of armor of 300 or 400 tons, intended for the Russian imperial vessel "Emperor Alexander III." At this plate three shots were fired, from a 10-inch gun, with a velocity of 1739 foot seconds.

The Cleveland Cap Screw Company of Cleveland, who were recently organized with \$250,000 capital stock, to manufacture special lines of cap screws, are now making extensive improvements to the plant formerly occupied by the Grant Tool Company, which they have acquired. They are installing new boiler and engine equipment, also electrical equipment for electrical welding, which will enter largely into the products. The plant will not be in full operation for several weeks, as it will require that time to complete the improvements. D. J. Kurtz, president of the company, was for 25 years connected with the William Bingham Company, and more recently was at the head of the O. P. Clay Stamping Company. F. E. Bright the vice-president and H. V. Bright, treasurer and general manager, have been identified with the manufacture of metal specialties in Cleveland for several years. Samuel M. Mather, secretary of the company, was connected with the William Bingham Company for 12 years.

The American Shipbuilding Company now have on hand contracts for 20 steel vessels, and the prediction made some weeks ago that all the berths on the Great Lakes will soon be filled now looks like a certainty, as it is known that a number of other parties are figuring on closing contracts in the near future. A contract was closed last week by Henry Hawgood and others of Cleveland for a steel steamer to have a capacity of about 6500 tons. The boat is to be completed and ready for business April 15, 1902. William A. Hawgood of Cleveland has also placed a contract for a boat of the same size. The vessels will be duplicates of the steamer "Clarence A. Black." They will be 434 feet over all, 414 feet keel, 50 feet beam and 28 feet deep. They will have triple expansion engines with cylinders 22, 35 and 58 inches, with 40-inch stroke. Steam will be furnished by two Scotch boilers 13 feet 2 inches in diameter and 12½ feet long. The boats will be fitted with the Ellis & Eaves induced draft system. The two steamers will cost about \$257,000.

The Vulcan Foundry & Machine Company of New Castle, Pa., have begun work on their new \$50,000 machine shop in the mill district of that city. They are also erecting a new engine house.

A Moderate Decline in Pig Iron Production.

Stocks Practically Stationary.

Partly owing to the fact that the output of many furnaces was a little below the normal makes the production of pig iron during July fall off somewhat, and we entered August with a reduced capacity. Stocks during the month, either individually or collectively, show little change.

The weekly capacity of the furnaces in blast on August 1 compares as follows with that of the preceding periods:

	Furnaces in blast.	Capacity per week. Gross tons.
August 1, 1901	257	303,847
July 1	249	310,950
June 1	252	314,505
May 1	256	301,125
April 1	250	296,676
March 1	248	292,899
February 1	245	278,258
January 1	233	250,351
December 1, 1900	211	228,846
November 1	301	215,304
October 1	213	223,169
September 1	228	231,778
August 1	240	244,426
July 1	284	283,413
June 1	293	296,376
May 1	292	293,850
April 1	291	289,482
March 1	293	292,643
February 1	296	298,014
January 1	290	294,186
December 1, 1899	283	296,950
November 1	277	288,532
October 1	265	278,650
September 1	257	267,335
August 1	244	267,072
July 1	237	263,363
June 1	230	251,062
May 1	217	250,095
April 1	205	245,746
March 1	192	228,195
February 1	196	237,639
January 1	200	243,516

The condition of the charcoal furnaces at the beginning of the month was as follows:

Charcoal Furnaces in Blast August 1, 1901.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New England	7	3	278	4	360
New York	3	1	612	2	250
Pennsylvania	13	1	50	12	524
Maryland	4	0	0	4	443
Virginia	3	1	40	2	140
Ohio	9	3	142	6	439
Kentucky	3	0	0	3	200
Tennessee	5	1	343	4	360
Georgia	4	1	260	3	783
Alabama	4	4	1,271	0	0
Michigan, Missouri and Wisconsin	11	6	3,442	5	1,499
Texas	4	1	140	3	732
Totals	70	22	6,578	48	5,890

As compared with previous months the record of active charcoal furnaces stands as follows:

	Furnaces in blast.	Capacity per week.
August 1, 1901	22	6,578
July 1	22	7,157
June 1	22	7,514
May 1	23	7,210
April 1	25	7,910
March 1	26	8,074
February 1	31	8,325
January 1	32	7,097
December 1, 1900	32	6,779
November 1	30	7,928
October 1	31	8,248
September 1	31	8,227
August 1	31	8,295
July 1	32	8,492
June 1	27	7,605
May 1	25	6,894
April 1	29	7,538
March 1	29	7,047
February 1	32	8,004
January 1	30	7,457
December 1, 1899	30	7,511
November 1	29	7,113
October 1	25	6,222
September 1	24	5,665
August 1	22	6,189
July 1	20	6,018
June 1	16	4,943
May 1	20	4,846
April 1	17	4,777

March 1	16	4,380
February 1	17	4,967
January 1	20	6,026

The condition of the coke and anthracite furnaces at the beginning of the month was as follows:

Coke and Anthracite Furnaces in Blast August 1, 1901.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New York	14	4	5,098	10	4,257
New Jersey	8	3	1,868	5	2,659
Spiegel	3	3	753	0	0
Pennsylvania					
Lehigh Valley	26	12	7,458	15	5,234
Spiegel	1	1	110	0	0
Schuylkill Valley	13	9	6,670	4	1,840
Upper Susquehanna	2	1	1,032	1	836
Lower Susquehanna	10	7	5,895	3	931
Lebanon Valley	12	12	8,626	0	0
Pittsburgh District	32	21	70,134	1	1,345
Spiegel	1	1	1,819	0	0
Shenango Valley	15	14	19,896	1	1,003
Western Pennsylvania	19	12	16,736	7	3,088
Spiegel	1	1	458	0	0
Maryland	5	4	5,602	1	1,200
Wheeling District	9	8	10,718	1	2,140
Ohio					
Mahoning Valley	15	13	26,343	2	2,810
Central and Northern	14	14	25,144	0	0
Hocking Valley	2	2	700	0	0
Hanging Rock	13	9	5,383	4	907
Illinois	16	16	32,272	0	0
Spiegel	1	1	1,071	0	0
Minnesota	1	0	0	1	763
Wisconsin	5	3	3,522	2	1,176
Missouri	1	0	0	1	570
Colorado	2	2	3,000	0	0
The South					
Virginia	21	15	7,819	6	3,033
Kentucky	5	3	1,544	2	935
Alabama	26	26	21,774	8	5,200
Tennessee	15	9	5,897	6	2,697
Georgia	1	0	0	1	450
North Carolina	1	0	0	1	437
Totals	318	235	297,569	83	43,111

In comparison with previous months the record of the coke and anthracite furnaces stands as follows in gross tons:

	Number in blast.	Capacity per week.
August 1, 1901	235	237,569
July 1	227	303,793
June 1	232	306,991
May 1	233	293,915
April 1	225	288,766
March 1	222	284,825
February 1	214	278,258
January 1	201	243,254
December 1, 1900	179	222,067
November 1	171	207,381
October 1	182	214,921
September 1	197	223,551
August 1	209	236,131
July 1	232	274,921
June 1	266	288,771
May 1	267	286,356
April 1	263	281,644
March 1	264	285,596
February 1	264	290,010
January 1	250	286,729
December 1, 1899	253	289,448
November 1	248	281,409
October 1	241	272,428
September 1	233	261,670
August 1	222	261,483
July 1	217	257,345
June 1	204	249,119
May 1	197	245,249
April 1	188	240,969
March 1	175	223,865
February 1	178	222,672

The following changes have taken place in July. Union at Buffalo went out for repairs. One Thomas stopped work, but another is to blow in this week. Juniata in Western Pennsylvania has stopped for relining. In the Hanging Rock region Union started, while in the Mahoning Valley one Hubbard went out of blast. In the South Victoria in Virginia, one Woodstock and Hattie Ensley in Alabama were blown in, while one Ashland was put out.

Furnace Stocks.

The position of furnace stocks, sold and unsold, as reported to us, was as below on August 1, the same furnaces being represented as in former months. This does not include the holdings of the steel works producing their own iron:

Stocks.	Mar. 1.	April 1.	May 1.	June 1.	July 1.	Aug. 1.
Anthracite and Coke	455,840	398,712	363,251	333,813	327,761	328,787
Charcoal	80,608	79,163	75,037	73,910	64,837	59,542
Totals	536,443	476,975	438,288	407,723	392,598	387,329

MANUFACTURING.

Iron and Steel.

The rod mills of the Sharon Steel Company, at Sharon, Pa., are now in full operation and turning out a large output. As already noted, there are two rod mills, duplicates of each other, each mill using a 1½-inch billet, 30 feet long, which is reduced to a No. 5 rod.

It is probable that the plant of the United States Tube & Iron Company, South Side, Pittsburgh, will not be idle more than a few days, on account of scarcity of skelp. The concern have made arrangements for a supply of skelp, which they hope to receive not later than the 20th inst.

The Youngstown Mfg. Company, organized at Youngstown, Ohio, recently, have broken ground for their new works at Struthers, and will push the erection of the buildings as fast as possible. The concern will make bolts, nuts and rivets, and have an authorized capital of \$300,000. The officers are Thomas McDonald, president; Hugh B. Wick, vice-president, and Edwin McEwin, secretary and treasurer. We may also note that the Youngstown Mfg. Company have purchased 80 acres of land from the Struthers Estate, at Struthers, a suburb of Youngstown, and will undertake to build a few steel cars under patents. The license to manufacture the sample cars has been arranged for with the inventor. If the cars are proven to be commercially satisfactory, the Youngstown Mfg. Company expect to organize a company to manufacture cars extensively and shall probably locate a large plant upon the land referred to above.

The Reading Iron Company, Reading, Pa., will rebuild Crumwold Furnace, at Emaus, Pa., which was recently destroyed by fire.

The banking firm of John I. Williams & Sons, of which John Skelton Williams is a partner, have acquired the majority of the capital stock of the Old Dominion Iron & Nail Works Company of Richmond, Va. For the present no radical change will be made in either the management or lines of manufacture, but it is not improbable that in the near future the plant will be materially enlarged, the building of an open hearth plant having been under consideration for some time.

The International Steel Company have incorporated with a capital of \$1,000,000, for the manufacture of steel under the Hawkins patent, which they own. Their present address is Corporation Trust Company Building, Jersey City, N. J.

Sidney C. Eastman, 716 Monadnock Building, Chicago, referee for the receiver, will offer for sale in his office at 2 o'clock p. m., August 19, all the personal property of the defunct Hammond Rolling Mill Company, Hammond, Ind., comprising their lease and all personal property, machinery, equipment, tools, manufactured iron, scrap, &c.

The Tennessee Coal, Iron & Railroad Company will build at the Ensley steel plant, Ensley, Ala., a continuous billet mill, to feed two trains, one for hoops and bands and the other for bars.

La Grange Furnace of the La Grange Furnace Company, at Stripling, Tenn., has been purchased by John Stites of Louisville, Ky., in the interest of the first mortgage bondholders, whom he represents. The machinery and railroad tracks will be wrecked and sold for second-hand material, and the land probably disposed of in parcels.

A gas producer and two gas heating furnaces are being built at the Wheatland Rolling Mills, at Wheatland, Pa. Part of the mill is running, making skelp.

Puddlers at the Norristown Iron Works, Norristown, Pa., have received a wage increase from \$4 to \$4.40 per ton.

General Machinery.

The Chicago Pneumatic Tool Company have been finding an increased general demand from abroad during the past few months for their tools. An item was published in these columns last week, giving the particulars of a very large single foreign order which had been placed with that company, probably the largest of the kind ever placed in the world. They have since received an order for 200 additional machines from the same party.

The Xylotite Mfg. Company have secured extensive buildings on Township street and the Miami Canal, Cincinnati, Ohio, wherein will be installed the necessary machinery for the production of pulleys. The concern control the patents for manufacturing "Xylotite," a substitute for wood made from wood and paper pulp, and have been for some time past experimenting with pulleys made from this material, the results of which have been far beyond the company's most sanguine expectations, there being no "slip." The concern are backed with ample capital headed by John H. Hibben, president, and J. D. Parker, treasurer.

The Northern Engineering Works, crane builders, Detroit, Mich., recently shipped to the Baker Iron Works, Los Angeles, Cal., a 3-motor electric traveling crane for their new shop. This crane was of their special low type design, occupying but small space above the runway. This firm have also installed in the plant of the Aeromotor Company of Chicago a 3-motor electric crane, 60 feet span, fitted with alternating current motors and equipment. This crane is of a special type designed for

handling pipe, and is an interesting instance of the application of alternating current to special electric crane service.

The John Baizley Iron Works, 514 South Delaware avenue, Philadelphia, manufacturers of and general contractors for all kinds of iron work and machinery, are building an extension to the plate shops, 78 x 62 feet, between Swanson and Water streets and Lombard and South streets. The building will be 29 feet high and will have a platform 20 feet wide hung from the roof trusses encircling the area. The sides will be mostly of glass with steel columns, all lights to be of a translucent fabric, made in Quincy, Mass. There will be a slag roof, with skylights.

The American Valve Company, Coxsackie, N. Y., who were incorporated early in the year with a capital of \$50,000, have purchased a lot 220 x 600 feet, upon which they will erect a machine shop 120 x 40 feet, of brick and steel construction. The contract for the building has been awarded. Included in the new equipment will probably be an electric drive.

The Albion Wind Mill & Implement Company, Albion, Mich., will shortly be reorganized with larger capital stock, and a gasoline engine added to the list of manufactures. The patents on the latter are held by James H. Cook of Homer, who will probably be general manager of the new company, as the business of the Cook Cutlery Company will be taken over in the deal.

The Ludlow Valve Mfg. Company, Troy, N. Y., have nearly completed a large extension to the foundry and machine shop, which will increase the present capacity about one-quarter. When finished employment will be given to about 100 more men, increasing the force to about 500 men.

The Pawtucket Mfg. Company, Pawtucket, R. I., manufacturers of bolt and nut machinery, special machinery, bolts, cold punched nuts, &c., are enlarging their plant by an addition to the machine shop, 110 feet long, two stories high, with well lighted basement, of brick construction with granite trimmings throughout; an addition to the bolt forging department, 96 x 40 feet, of brick and wood, and by the erection of a new building for the machine forging department, 64 x 40 feet, of brick, wood and steel, the roof being supported by steel trusses, 40 feet span, to be covered with pine planks with a tar gravel roof.

The owners of the Manistee Iron Works, Manistee, Mich., have begun to rebuild their plant, which was recently destroyed by fire. The establishment was an important part of the business interests of Manistee, and the decision of the company to rebuild has been received with great satisfaction by the citizens.

The Red Jacket Mfg. Company, Davenport, Ia., are doubling the capacity of their factory to enable them to keep up with the demand for their pumps. The company have experienced a heavy increase in their trade through the establishment of enlarged business relations over a greater section of the country.

The Hodge Mfg. Company, Greenville, Pa., are an incorporated company under the laws of the State of Pennsylvania, but the actual owners are E. W. Hodge and wife, with three sons and one daughter. They do general repairs and manufacture new articles in iron and brass to order. They do a considerable amount of work for the Sharon Steel Works and manufacture mining cars. The company have been employed full time for five years and are so now.

The partnership heretofore known as the Merritt Mfg. Company, Lockport, N. Y., have incorporated under the same name. The company manufacture wood working machinery, and there will be no change in either the management or lines of manufacture.

The works of the Davenport Foundry & Machine Company, Davenport, Iowa, recently suffered a \$5000 loss by fire.

The Blymyer Iron Works Company, Cincinnati, Ohio, are at present shipping almost their entire output to Mexico, Central and South America. A complete sugar mill equipment has recently been ordered for export to Tehuantepec, Mexico, and fair sized lots of machinery have recently been shipped to both the British and Dutch East Indies.

Engines and Boilers.

The Standard Automatic Gas Engine Company, Oil City, Pa., have recently shipped the following engines: one 15 horse-power, to Mexico; one 30 horse-power, to Marietta, Ohio; one 50 horse-power, to Chicago; two 400 horse-power, to Oil City Street Railway Company, and are busily engaged in completing three 120 horse-power engines for Camden, N. J.; four 1000 horse-power engines for Philadelphia, both of which are direct connected to generators, and four 300 horse-power engines for Red Bank, N. J.

The Titusville Iron Company, Titusville, Pa., have during the past year considerably increased the boiler shop and foundry capacity. Both have also been equipped with additional electric cranes. In the boiler shop a set of 20-foot rolls have been placed and two additional punches, a pair of beveling shears and splitting shears. The company are running full and every other night up to 10 o'clock with a day force.

The J. I. Case Threshing Machine Company, Racine, Wis., are reported to have purchased considerable property on which they propose to erect a very large plant for the manufacture of boilers. It is further stated that the company have already

placed orders for large hydraulic presses to be used in equipping the boiler plant.

The Niles Boiler Company, Niles, Ohio, have been awarded a contract for 1500 horse-power boilers, two engines, several dynamos, feed water heaters, four pumps and eight shears by the Waukesha Sheet Steel Company of Waukesha, Mich.

The United Boiler Company, Girard, Ohio, will build an addition to their plant 100 x 96 feet and two stories high. Several electric cranes will be installed.

Foundries.

The Altoona Foundry & Machine Company, Altoona, Pa., have been organized by the Board of Trade of that city for the purpose of erecting a malleable iron foundry. The full capital required, \$30,000, has been subscribed and ground has been purchased for the plant. The directors are John P. Leven, H. K. McCauley, B. M. Bunker, M. V. Orner and John A. Doyle. John B. Leven is president and B. M. Bunker secretary and treasurer.

The St. Albans Foundry Company, St. Albans, Vt., have been reorganized under the name of the St. Albans Foundry & Implement Company with ample facilities for carrying on the business in a thoroughly vigorous and aggressive manner. The officers are C. A. Tinker, president; W. Tracy Smith, vice-president and general manager; F. Walworth Smith, secretary and treasurer, and J. C. Leslie, general superintendent.

The American Malleable Casting Company have established their general offices in Suite 423, Chamber of Commerce Building, Chicago. They will have much larger quarters than in their former location in the same building.

The Lennox Machine Company, Marshalltown, Iowa, have added to their plant a new building for foundry purposes, 64 x 148 feet. They will use their old molding room as an erecting shop and storehouse. The company are finding a heavily increased demand for their rotary bevel and splitting shears, which has made it necessary to increase their facilities for the production of castings.

The George B. Sennett Company, founders, Youngstown, Ohio, have received a large contract for parts of the new 26-inch billet mill being built at the Bessemer works of the Republic Iron & Steel Company, in Youngstown. The order includes several sets of large tables, which are to be completed by October 1. This is the second large job received by the George B. Sennett Company for the new billet mill of the Republic Iron & Steel Company.

The Lehigh Foundry Company, 141 Broadway, New York City, manufacturers of heavy castings, will build an 80-foot addition to their plant at Fullerton, Pa. The officers are J. S. Elverson, president; J. W. Fuller, vice-president, and Winslow Wood, secretary and treasurer. Henry J. Davis is sales agent.

Thos. Hewitt's Cons Company, Sherman Avenue Iron Works, East Newark, N. J., have plans prepared for a new foundry, 85 x 100 feet, of brick construction. In addition to the foundry the company will erect a two-story wood pattern shop, also new iron cupola, lined with fire brick, and brick core ovens, with iron tops. The power equipment will be increased and some new iron working machinery added, including a new electric traveling crane of about 15 tons capacity.

The Iron foundry of Maher & Flockhart, at Polk and Clover streets, Newark, N. J., was considerably damaged by fire last week. A quantity of machinery and valuable patterns were lost.

Humphrey & Son's foundry at Joliet, Ill., was burned on the 11th inst., involving a loss of about \$20,000, which is fully covered by insurance.

The Taunton Locomotive Mfg. Company, Taunton, Mass., will erect a new foundry at a cost of about \$20,000, plans for which are not as yet completed.

Machine Tools.

While on the whole the foreign demand for machine tools has not been at all good, the Cincinnati Planer Company, Cincinnati, Ohio, have just received orders from Buenos Ayres, Argentine; Santiago, Chili, and Mexico for their planers. B. B. Quillen, secretary of the concern, who has just returned from an extended trip throughout the East, reports the demand for machine tools as being very good, the company securing their share of orders for same.

At a meeting of the stockholders of the Fifield Tool Company, Lowell, Mass., whose plant was recently entirely destroyed by fire, it was voted not to rebuild, and an assignment was made to William C. Doherty and Roswell M. Boutwell. The property will be disposed of at an early date and it is probable that it will be bought up by parties who will continue the manufacture of their well-known engine lathes.

Hardware.

The Swelgart Mfg. Company, Thurmont, Md., have been incorporated with a capital of \$15,000. The following are the officers and directors: W. W. Swelgart, president; Geo. W. Albaugh, vice-president; Samuel M. Birely, secretary and treasurer; Vincent Sebold, Horace G. Reese and John C. Motler. The company will manufacture the Swelgart royal mail box,

recently patented, and, we are advised, adopted by the Post Office Department.

Hubbard & Co., Pittsburgh, Pa., are now running the department devoted to the production of their well-known Hubbard one-piece solid steel snow shovel to its full capacity. The shovel is made from high quality steel without rivets, and its lightness, ease of handling and durability are referred to.

Henry Diaston & Sons, Philadelphia, Pa., report a very large volume of business. Their extensive plant is being operated to its full capacity in all departments, and it is still difficult to keep up on deliveries. A number of minor improvements to the plant have recently been made and the conditions for future trade are considered very favorable.

Standard Paint Company, 100 William street, New York, manufacturers of the well-known P & B preservative paints, refer to the fact that some of the large railroad companies have for years not only used it on the iron framework of their cars but on the wood floors of refrigerator, dairy and stock cars, &c., where it is said to be particularly valuable for waterproofing purposes. One large transportation company, they state, apply the P & B water proof paint to all the sills and framing timbers of their refrigerator cars, their aim being to apply it to all timbers of the cars that are in any way exposed to dampness.

Miscellaneous.

The Girard Stove & Repair Company, Girard, Ohio, have organized to make stove repairs and castings. A foundry will be erected near the Vienna branch of the Erie Railroad at Mosler.

The Pressed Steel Car Company of Pittsburgh made a shipment of steel cars last week to Durban, Natal, South Africa, where they will be turned over to the Zululand Railway. The shipment consisted of ten flat cars of 50,000 pounds capacity, and is an exact duplicate of a shipment made some time ago to the same railroad. The cars are 32 feet long, 8 feet wide and 3 feet 3¼ inches high. This is the third shipment of cars to South Africa made by the Pressed Steel Car Company within the last six months.

Among recently licensed corporations in Illinois are the Decatur Refrigerator & Mfg. Company, Decatur, Ill., with a capital stock of \$30,000. The incorporators are Robert Farles, P. R. Osborn and John Schweinbold.

The Star Metal & Stamping Company, Davenport, Iowa, designers and manufacturers of sheet metal goods, have incorporated with a capital stock of \$10,000. The company are successors to the Morgan Match Box Company and are expanding the business in many ways.

G. H. Jay & Co., composing the Standard Wire & Iron Works of the east side, Toledo, Ohio, have dissolved partnership, Albert Oleson having withdrawn from the business. The works will be moved to the west side.

The National Pipe Bending Company, New Haven, Conn., manufacturers of National feed water heaters and coolers and benders of pipe, have awarded the contract for the construction of a two-story brick addition, 100 x 60 feet, to their plant. The building is intended for an addition to the brass and copper coiling department, and will cost about \$15,000.

An erroneous statement is going the rounds of the press that C. H. Besly & Co. are arranging to erect a large factory near Clybourn Junction, Chicago, for the manufacture of brass. The factory is being erected by Brown & Besly for the production of their patent letter files.

Among recently licensed corporations in Illinois are the Brown Specialty Machinery Company, Chicago, with a capital stock of \$10,000. The incorporators are Edwin S. Brown, Parker S. Webster and Arthur L. Currey.

The American Brass Company, the new owners of the Chicago Brass Works, Kenosha, Wis., have begun the erection of an additional rod manufacturing department, 30 x 100 feet, which will enable them to greatly increase the output of the plant.

The Pittsburgh Fuel Saving Furnace Company have been incorporated under the laws of New Jersey with a capital of \$25,000, to manufacture furnaces.

The American Belting Company will erect a works at Youngstown, Ohio, for making belting, main building to be 620 x 35 feet. The machine shop and boiler house will be two stories high, 135 x 70 feet.

Consolidation of Limestone Companies.—A movement is on foot to consolidate some of the most important producers of limestone in Western Pennsylvania and Eastern Ohio. It is understood that the Carbon Limestone Company of Youngstown will go into the new combination and also a number of small concerns. It is stated that the new combination has secured prices on all the limestone quarries of any importance in Western Pennsylvania and in Eastern Ohio, and that when present plans are carried through the limestone business will be pretty much under the control of one concern.

The Iron and Metal Trades.

The decision of the Amalgamated lodges in the Chicago district not to join in the strike and the steady gain in putting Sheet and Hoop mills into operation foreshadows an early collapse of the strike. How little the Steel production has been affected is shown by the fact that out of the normal daily product of 28,000 to 30,000 tons of Steel ingots made by the United States Steel Corporation, plants with a capacity of only 3,500 tons per day were idle, according to reports received yesterday. As yet no orders have been given to bank any of the furnaces, although that may come if the strike should continue. As matters are now the Corporation will simply not buy as much outside Iron as heretofore.

With the Chicago plants running, the Rail trade remains among the branches unaffected. There has been a gain in the tonnage of the Sheet company, which is now making about 65 per cent. of the normal output. Since the Painter mill has been started, practically all of the more important of the Hoop Company's mills are in operation, at least partially. The Tin Plate Company has to-day made a start in resuming operations. Since last week the most serious change has been that among the Western Skelp mills, a number of which have stopped work. In anticipation there have been large purchases of Skelp, which has advanced quite sharply. Two important Tube mills are now virtually closed down.

The scarcity of material for prompt delivery has caused a sharp advance in Tin Plate, Sheets, Hoops, Skelp and Bars. Still in the latter some good contracts for long time delivery have been closed, among them one lot of 14,000 tons to an Ohio agricultural implement maker. In the Plate trade further good orders have been placed for ships on the lakes. The American Bridge Company have taken a number of good orders, among them some notable ones for highway bridges, a department which is being cultivated.

The Pig Iron statistics for August 1 show that the make of Coke and Anthracite Iron declined from 303,793 tons weekly on July 1 to 297,269 tons weekly on August 1. The stocks of Pig Iron reported by makers remained practically stationary, thus showing that consumption is taking care of the current output, large as it is. In Pittsburgh, as is natural under the circumstances, the Pig Iron market is weaker, since the buying on the part of the Corporation will virtually cease for some time to come.

The Steel market is firmer, due to the curtailment of output caused by the strike. There has, naturally, been some activity, too, in Muck Bars.

From the South comes the report that freight room has been engaged for a large block of Pig Iron for shipment to Genoa, Italy.

A Comparison of Prices.

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

	Aug. 14, 1901.	Aug. 7, 1901.	July 17, 1901.	Aug. 15 1900.
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia	\$14.75	\$14.75	\$14.75	\$16.25
Foundry Pig, No. 2, Southern, Cincinnati	13.00	13.00	12.75	13.75
Foundry Pig, No. 2, Local, Chicago	15.00	15.00	15.00	16.00
Bessemer Pig, Pittsburgh	15.75	15.75	16.00	16.00
Gray Forge, Pittsburgh	13.75	13.75	13.50	14.00
Lake Superior Charcoal, Chicago ..	17.00	17.00	17.00	20.00
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh (nom)....	24.00	24.50	24.00	18.00
Steel Billets, Philadelphia (nom)...	26.90	25.50	26.50	20.50
Steel Billets, Chicago, (nom).....	.....	.....	.....	20.00
Wire Rods (delivered).....	36.00	36.00	36.00	35.00
Steel Rails, Heavy, Eastern Mill..	28.00	28.00	28.00	33.60
Spikes, Tidewater	1.80	1.80	1.80	1.80
Splice Bars, Tidewater	1.50	1.50	1.50	1.50
OLD MATERIAL, PER GROSS TON				
O. Steel Rails, Chicago	13.00	13.00	13.00	9.50
O. Steel Rails, Philadelphia	16.00	15.75	15.75	13.00
O. Iron Rails, Chicago	20.00	19.00	18.50	12.50
O. Iron Rails, Philadelphia	19.00	19.00	19.00	14.00
O. Car Wheels, Chicago	16.50	16.50	16.50	15.00
O. Car Wheels, Philadelphia	16.50	16.50	17.50	17.00
Heavy Steel Scrap, Chicago	12.00	12.00	12.50	9.00
FINISHED IRON AND STEEL, PER POUND:				
Refined Iron Bars, Philadelphia...	1.55	1.55	1.55	1.30
Common Iron Bars, Chicago	1.55	1.60	1.55	1.60
Common Iron Bars, Youngstown..	1.50	1.45	1.45	1.25
Steel Bars, Tidewater	1.60	1.60	1.60	1.17½
Steel Bars, Pittsburgh	1.45	1.40	.....	1.10
Tank Plates, Tidewater	1.75	1.75	1.75	1.30
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.10
Beams, Tidewater	1.75	1.75	1.75	2.05
Beams, Pittsburgh	1.60	1.60	1.60	1.90
Angles, Tidewater	1.75	1.75	1.75	1.95
Angles, Pittsburgh	1.60	1.60	1.60	1.80
Skelp, Grooved Iron, Pittsburgh..	2.05*	1.90	1.85	1.25
Skelp, Sheared Iron, Pittsburgh ..	2.10*	2.00	1.90	1.25
Sheets, No. 27, Pittsburgh	3.75*	3.50	3.20	2.85
Barb Wire, f.o.b. Pittsburgh	2.90	2.90	2.90	2.80
Wire Nails, f.o.b. Pittsburgh	2.30	2.30	2.30	2.20
Cut Nails, Mill	2.00	2.00	2.00	1.95
METALS:				
Copper, New York	16.50	16.50	17.00	16.50
Spelter, St. Louis .....	.....	.....	3.80	4.00
Lead, New York	4.37½	4.37½	4.37½	4.25
Lead, St. Louis .....	.....	.....	4.37½	4.30
Tin, New York	27.60	27.50	27.25	31.50
Antimony, Hallett, New York	8.50	8.75	8.75	9.50
Nickel, New York	60.00	60.00	60.00	55.00
Tin Plate, Domestic Bessemer, 100 lbs., New York	nom.	nom.	4.19	4.84

* Spot shipment.

Chicago.

1205 FISHER BUILDING, August 14, 1901 (By Telegraph.)

There is less nervousness in the markets this week and among many the opinion prevails that the strike situation will steadily improve. The strike influence has been largely eliminated in the buying this week, the market corresponding nearly to the normal condition of trade and manufacture. The very helpful sign appears that specifications are large, particularly with the implement people. Last year about this time there was a wide suspension of activities in the shops because of scant selling of machines and tools in the Northwest. A few implement plants have closed for a week or two for repairs, but at other plants the line between the new and the old season will not be distinctly drawn because of satisfactory condition of trade. An implement concern of Springfield, Ohio, closed this week for about 14,000 tons of metal material. The serious check to manufacture because of shortage in Sheets, Tin Plates and Hoops continues with a tendency toward higher prices. Locally the labor situation cannot be said to have improved greatly. The molders' strike has lost little of its strength and the ragged ends of the machinists' strike linger.

Pig Iron.—It has been a fairly good week for carload business. There have been a few orders running from a carload up close to 1000 tons. For these transactions of a few hundred tons each, the deliveries run usually for

a period of four or five months, beginning about September 1. The tone of the market may be slightly firmer. Quotations have not advanced, but there is an absence of concessions previously granted. A number of smaller Southern producers have practically withdrawn from the market for shipments within 60 or 90 days. Another reason for the slightly better feeling is that little Iron is on track, producers having obeyed the usual rule of limiting shipments to barest needs on the eve of a possible strike. There is little or no Iron that is pressing for sale. The molders' strike, however, continues to dull the demand locally and buying on the whole is moderate. Malleable Iron is inquired for in fair sized lots by large consumers and the anticipation is that with a close of labor troubles considerable business will appear. We quote as follows:

Lake Superior Charcoal.....	\$17.00 to \$18.00
Local Coke Foundry, No. 1.....	15.50 to 16.00
Local Coke Foundry, No. 2.....	15.00 to 15.50
Local Coke Foundry, No. 3.....	14.50 to 15.00
Local Scotch, No. 1.....	15.75 to 16.25
Ohio Strong Softeners, No. 1.....	16.00 to 16.50
Southern Silvery, according to Silicon.....	14.90 to 15.15
Southern Coke, No. 1.....	14.65 to 14.90
Southern Coke, No. 2.....	14.15 to 14.40
Southern Coke, No. 3.....	13.65 to 13.90
Southern Coke, No. 1 Soft.....	14.65 to 14.90
Southern Coke, No. 2 Soft.....	14.15 to 14.40
Foundry Forge.....	13.15 to 13.40
Southern Gray Forge.....	12.65 to 12.90
Southern Mottled.....	12.15 to 12.40
Southern Charcoal Softeners, according to Silicon.....	15.00 to 16.50
Tennessee Silicon Pig.....	16.00 to 17.00
Alabama and Georgia Car Wheel.....	19.90 to 20.50
Malleable Bessemer.....	to 16.50
Standard Bessemer.....	17.50 to 18.00
Jackson County and Kentucky Silvery, 8 per cent. Silicon.....	15.75 to 16.25

Bars.—There continues a very active call for Bars, especially for prompt shipment. There is in some instances a difference of \$3 per ton in the prices asked from mill for immediate delivery and for contracts running through several months. Jobbers' stocks are the subject of unusual attention and are being rapidly depleted. Many wagon makers are short of ready material and they are among the present eager buyers. Specifications are very large. Contract business keeps up at pretty much the gait of previous weeks. Besides the Ohio contract for 14,000 tons of implement material noted above, a number of smaller contracts have been closed this week, and it is noted that some purchasers of two or three months ago are adding to their tonnage. Prices are steady at the recent advance. Contracts are being made at 1.55c. to 1.60c. for Iron and Steel, but for quick shipment Iron brings 1.65c. and Steel 1.65c. to 1.70c. Small lots from stock are quoted at 1.90c. to 2c. for Bars and 2.40c., base, for Hoops.

Structural Material.—Specifications for Structural Material are large in the aggregate, though made up mainly of small lots. The country has been ordering very freely during the past few days, and mills are said to be overstocked with orders. There is, however, some hesitation in closing large contracts, due, it is intimated, to the late uncertainty respecting the strike. Mill shipments are quoted as follows: Beams, Channels and Zees, 15 inches and under, 1.75c.; 18 inches and over, 1.85c.; Angles, 1.75c. rates; Tees 1.80c.; Universal Plates, 1.75c. to 1.85c.; small lots of Beams and Channels from local yards are quoted at 2.25c.; Angles, 2c. rates; Tees, 2.15c.

Plates.—The sales of Plates from mill are said to be about equal to production and from jobbers' stocks the movement is fairly large. Prices unchanged. Mill shipments are quoted as follows: Tank Plate, ¼-inch and heavier, 1.75c. to 1.80c., Chicago; Flange, 1.85c.; Marine, 1.95c. Jobbers are selling small lots from store at 1.90c. to 2c. for Tank and 2.25c. for Flange, with the usual extras for heads, segments, lighter gauges, &c.

Sheets.—The Western trade in Sheets is mainly from store. Prices have not materially advanced during the last week, though there is much irregularity in quotations, conditions widely varying with both buyers and sellers. While some stocks are practically exhausted there are others that are yet in good shape. Though demand is quite large, No. 27 Black is quoted from 3.80c. to 4c. For Galvanized, 65 per cent. is a common quotation. Sales have been made as high as 60 and 5. There are now practically no stocks of Tin Plates remaining.

the sales of the past two weeks having cleaned up everything in sight.

Merchant Pipe.—Conditions do not vary materially from those of a week ago. There is a good steady demand from jobbers, but small producers are in evidence and the consuming trade is keeping up in pretty much the old volume. Manufacturers' prices, random lengths, are as follows:

	In carloads.	Less than carloads.
	Blk. Galvd.	Blk. Galvd.
½ to ¾ inch and 11 to 12 inches.....	59.2 46.2	54.9 40.9
¾ to 10 inches.....	66.7 53.3	61.9 49.9

Boiler Tubes.—There is a steady demand and the stronger prices are well maintained. Quotations on less than carload lots from jobbers' stocks are as follows:

	Steel.	Iron.
1 to 1½ inches.....	35	30
1½ to 2½ inches.....	50	40
2½ to 5 inches.....	57½	47½
6 inches and larger.....	52½	45

Rails and Track Supplies.—In lots of 2000 tons or less there is a fair demand for both Standard and Light Sections of Rails. The deliveries of the former cannot be made this year and for the latter not for several months. Prices are quoted at \$28 for Heavy Sections, and \$29 to \$33 for Light Sections. Track fastenings are strongly held in quotations and considerable business is being done. Quotations are as follows: Splice Bars, 1.65c. to 1.75c., according to quality; Spikes, 1.95c. to 2c.; Track Bolts, with Hexagon Nuts, 2.80c., to 2.90c.; with Square Nuts, 2.65c. to 2.75c.

Merchant Steel.—Transactions of the past week have been mainly in moderate lots. Many of them have been supplementary orders, buyers of two or three months ago making additions to their former purchases. The consumers are specifying very freely and trade for August is unusually brisk. Mill shipments, Chicago, are quoted as follows: Smooth Finished Machinery Steel, 2c. to 2.10c.; Smooth Finished Tire, 1.85c. to 2c.; Open Hearth Spring Steel, 2.30c. to 2.40c.; Toe Calk, 2.40c. to 2.60c.; Sleigh Shoe, 1.85c. to 1.90c.; Cutter Shoe, 2.40c. to 2.60c.; Cold Rolled Shafting, 55 off. Ordinary grades of Crucible Tool Steel are quoted at 6½c. for carloads and 7c. to 7½c. from store; Specials, 12c. upward.

Old Material.—One of the smaller Western mills has lately bought about 14,000 tons of Old Material, or enough to cover all the contracts for product the mill owners have accepted. Some other buyers are taking Scrap only as fast as required. The tendencies of the market are conflicting, for there is unusual dullness in some directions and decided activity in others. There is good inquiry for Old Iron Rails and for Wrought Scrap, with prices higher. The following are approximate quotations per gross ton:

Old Iron Rails.....	\$20.00 to \$20.50
Old Steel Rails, mixed lengths.....	13.00 to 13.50
Old Steel Rails, long lengths.....	15.50 to 16.00
Heavy Relaying Rails.....	24.00 to 26.00
Old Car Wheels.....	16.50 to 17.00
Heavy Melting Steel Scrap.....	12.00 to 12.50
Mixed Steel.....	10.50 to 11.00

The following quotations are per net ton:

Iron Fish Plates.....	\$15.50 to \$16.00
Iron Car Axles.....	18.50 to 19.00
Steel Car Axles.....	15.50 to 16.00
No. 1 Railroad Wrought.....	15.00 to 15.50
No. 2 Railroad Wrought.....	13.00 to 13.50
Shafting.....	15.50 to 16.00
No. 1 Dealers' Forge.....	12.00 to 12.50
No. 1 Busheing and Wrought Pipe.....	10.50 to 11.00
Iron Axle Turnings.....	10.50 to 11.00
Soft Steel Axle Turnings.....	9.00 to 9.50
Machine Shop Turnings.....	10.00 to 10.50
Cast Borings.....	4.50 to 4.75
Mixed Borings, &c.....	4.50 to 5.00
No. 1 Bolders, cut.....	11.50 to 12.00
No. 2 Bolders, cut.....	9.50 to 10.00
Heavy Cast Scrap.....	10.50 to 11.00
Stove Plate and Light Cast Scrap.....	8.00 to 8.50
Railroad Malleable.....	11.50 to 12.00
Agricultural Malleable.....	10.50 to 11.00

Metals.—Dullness is the rule. Copper is selling fairly well for August requirements and Lead for immediate needs. Prices are steady. Carload lots of Lake Copper are held at 17¼c., and Casting brands 16¼ to 16¾. Pig Lead is maintained at 4.32½c. for Desilverized and 4.42½c. for Corroding in 50-ton lots. Dealers quote selling prices on small lots of Old Metals as follows: Copper Wire and Heavy, 15½c.; Copper Bottoms, 14c.; Pipe Lead, 4¼c.; Zinc, 3¼c.

Coke.—The molders' strike continues to curtail the local demand for Coke. There is a disposition among some producers to force sales, and prices are not firm. Quotations range from \$4.25 to \$4.75 for 72-hour Foundry Coke.

Philadelphia.

FORREST BUILDING, August 13, 1901.

The week in a business sense has again been almost a counterpart of several immediately preceding. In a general way there seems to be a disposition among buyers to limit transactions to temporary requirements, but orders of this character are numerous enough to keep manufacturers fully employed; consequently there is no running around to pick up new business, unless at full quotations or something very close thereto. Of course orders would be quite acceptable, particularly for deliveries during the last quarter of the year, but, as already stated, the initiative has to come from buyers, as sellers are not inclined to discount the future to any great extent. Naturally there is a considerable amount of uncertainty in regard to the course of events in the near future, owing to the strike at the Steel mills. From some points of view the strike may be very helpful to Eastern concerns, but there are contingencies which might develop very adverse influences, and which of these will be the first to become effective is a problem which time alone can solve. At present the West is taking a great deal of material from mills that usually find their markets in other directions, and to that extent local interests have been considerably helped. There is a possibility of a Steel famine, however, and finishing mills that depend on the West for their Billets and Slabs, may be considerably hampered if their supplies are cut off. There is no great scarcity at present, but consumers are afraid to place large orders, because it is supposed that prices will make a sharp drop if the strike comes to a sudden termination, and that is just what the trade expect will happen in the near future. These conflicting influences result in a somewhat passive indifference in regard to either buying or selling for long delivery, the current demand being sufficient to satisfy all interests temporarily.

Pig Iron.—The outcome of the week's business has not been unfavorable to the selling interests. Sales have been in fair volume. Inquiries for quotations and short options on good sized lots give the impression that there is a considerable amount of business approaching maturity, and that all the Iron that is being made will for some time to come find a ready market without making a new list of quotations. Stocks are kept at an unusually low point, and there are very few furnaces that are not short of some of the various standard grades. The situation as regards the Western furnaces is not clearly defined, but the monthly statement which is expected to appear in *The Iron Age* this week will no doubt give the desired information, and thereby clear up whatever uncertainty may exist in regard to that matter. The fact that the leading interests in the West have stopped buying Pig Iron is not a good feature, but in times like these it is hardly worth while to make any attempt to forecast the course of events, although, as we have already intimated, what is unfavorable for the West may to some extent be helpful to the East. If the output of Steel is reduced arbitrarily, so much the better for the makers of Iron, which is already being realized at most of the Eastern mills. Prices are steady to firm, as quoted in our last—viz., as follows for city and nearby deliveries, and 25c. to 50c. less at points within a radius of 100 miles or so South or West: No. 1 X Foundry, \$15.50 to \$16; No. 2 X Foundry, \$15 to \$15.25; No. 2 Plain, \$14.25 to \$14.75; Standard Gray Forge, \$13.75 to \$14; Ordinary Gray Forge, \$13.50; Basic (Chilled), \$14 to \$14.25; Bessemer, \$14.75 to \$15.

Billets.—There is a demand for Steel, but in most cases prompt shipments are required, for which \$26.20 to \$26.70 is quoted for deliveries to Eastern mills. For later months there is not much demand, but 50c. to \$1 less would probably be accepted for first-class business.

Muck Bars.—Demand good, but supplies limited, at about \$28.50, f.o.b. cars sellers' mills.

Plates.—The demand is active, and orders are about as numerous as can be accepted, unless for late deliveries. There is a special pressure for prompt shipments, so that sellers can, for the present, pick and choose the business that comes before them. Orders for the late fall and winter months would be freely taken, but the strike is making a considerable shortage, which will probably become very inconvenient if the strike continues much longer. Meanwhile prices are firm as last quoted—viz., for city and nearby deliveries: Plates, ¼-inch and thicker, 1.75c. to 1.80c.; Universals, 1.75c. to 1.80c.; Flange, 1.90c. to 2.10c.

Structural Material.—Deliveries are very much behind, and mills seem to be unable to handle some of the business which is put before them. Prospects indicate that these conditions will become worse before there is any substantial relief by increased supplies. Prices remain as last quoted—viz., for seaboard or nearby deliveries: Angles, 1.75c. to 1.85c.; Beams and Channels, 15-inch and upward, 1.75c. to 1.85c.

Bars.—Complications in the West are throwing a great deal of business to mills in this vicinity, so that they are fully employed. Muck Bars and Skelp Iron take up a great deal of the capacity, so that Merchant Bars are scarce, and will no doubt continue so as long as the strike is on. Prices unchanged, but firm, as follows: 1.55c. to 1.65c.—viz., equivalent to 1.45c., f.o.b. Pittsburgh—for the best Refined Iron, and Steel at about the same figures, for carload lots and upward.

Sheets.—There is no alleviation of the scarcity which has been experienced for many weeks past, so that it is impossible to quote prices at which an order could be placed. Nominally, quotations would be about as follows for best Sheets, but it is very uncertain if an order could be placed for any large quantity (Common Sheets two-tenths less): No. 10, 2.60c.; No. 14, 2.80c.; No. 16, 2.90c. to 3c.; Nos. 18-20, 3.50c.; Nos. 21-24, 3.60c.; Nos. 26, 27, 3.75c.; No. 28, 3.80c. to 4c.

Old Material.—There is a better demand for some grades, such as Heavy Melting Steel, Low Phosphorus Steel, Iron Rails, Iron Axles, &c. Sales have been made at \$16 to \$16.25 for the first named, \$22.50 for Low Phosphorus Steel, \$20 for Iron Rails, and \$23.50 for Iron Axles. These may be extreme prices, but the articles were wanted and were taken at the prices named. Other descriptions are doing a little better, but there is no quotable change to be made at this time. Bids and offers are about as follows for deliveries in buyers' yards per ton of 2240 lbs.: Choice Railroad Scrap, \$18 to \$19; Country Scrap, \$16 to \$17; No. 2 Light Scrap, \$12.50 to \$13; Machinery Cast, \$13.75 to \$14.25; Heavy Steel Scrap, \$15.75 to \$16.25; Old Iron Rails, \$19 to \$20; Old Steel Rails, \$16 to \$16.25; Wrought Turnings, \$11.50 to \$12; Cast Borings, \$7.25 to \$7.50; Old Car Wheels, \$16.50 to \$17; Iron Axles, \$23 to \$23.50; Steel Axles, \$17 to \$18.

Cleveland.

CLEVELAND, OHIO, August 13, 1901.

Iron Ore.—Interest in the movement of Iron Ore from Escanaba has flagged a little this week, although the demand for tonnage from the head of the lakes is as brisk as ever. The conditions at Escanaba, however, are but temporary, despite the statement made in many quarters that the August dullness has set in. The present easing up in the demand for boats is attributed to conditions at the mines which are preventing as free production as has been noted during the earlier parts of the summer. The showing made so far during the month of August is not very encouraging to the shippers. Close watch is being kept on all of the ports to see how much Ore is being received and it is admitted that if the shortage is to be wiped out during this month the showing must be better than it has been. All hopes of having moved all of the wild Ore down the lakes by September have been abandoned. At present carrying charges are holding firm at all ports upon the old fig-

ure of 80c. from Duluth and other head of the lakes ports, 70c. from Marquette, and 60c. from Escanaba.

Pig Iron.—The week opened with the impression pretty well grounded that the strike is not to be so serious as was feared. This immediately created a better feeling in the Pig Iron industry and the furnacemen are hopeful. As a result the market is stronger and better prices are already being talked of as in sight. Naturally Bessemer is most affected by the labor trouble, and the present business is inclined to be quiet. Sales are now being made requiring deliveries during the month of August only. There have been a few sales made which demand deliveries during the remainder of the year, but for the most part the big buyers have not covered their needs so far. The United States Steel Corporation have been expected to be a heavy buyer on the market, but are withholding their orders. The demand for the Foundry grades is slightly on the increase, and the sales this week, while in small quantities, have aggregated quite a good bit of business. Buyers still refuse to buy for any other than their present needs, and even these sales are being made a little late for some of the buyers, who cannot obtain the dispatch desired. Upon ordinary orders, however, the dispatch is fairly good, the Valley furnaces being able to make deliveries within ten days. The prices are still at \$13.50 and \$14 for Nos. 2 and 1 respectively, at the furnace, though the producers are asking more money, but not being able so far to obtain it. Basic Iron is still sold on the same basis of \$15 at the furnace, and with the sales keeping the pace with the other grades, both as to the amount of Iron sold and as to the conditions surrounding the deliveries. Deliveries are being promised inside of two weeks.

Finished Material.—The strike and the consequent closing of some of the mills has had a marked effect upon the market as it pertains to Sheet Bars and Billets. Primarily it has thrown quite a quantity upon the market, which has needed just such a relief. The sales this week of Sheet Bars and large Billets have amounted to about 3000 tons, the greater plenty of the product bringing out a demand which it was not known really existed. The producers have agreed upon prices which are to be obtained, being urged to that point probably by the fear that the shutting off of the consumption might so affect the market as to create a falling of prices. The association now demands \$27 on small Billets, \$25 on Sheet Bars and \$24 on Billets. This week the Ohio plant of the National Steel Company has been taken off of Billets and Sheet Bars and put back to the production of Steel Rails. This relieves two conditions at once. Shortly after the formation of the United States Steel Corporation this plant was cut out of the Rail rolling capacity and put upon Billets and Sheet Bars. Now the demand for the latter is easing up, and the mills producing Rails have more than they can do, hence the change. The sales of Rails continue in small quantities at the old prices, \$28 being paid on all representative orders. This week has also seen a big demand for Ship Plate and Structural Material used in the framework. The American Ship Building Company have been taking more orders for Steel ships, which now aggregate 20 that are to be constructed during the coming winter. The Carnegie Company this week took orders for about 6000 tons of ship material, a portion of which was sent to the Illinois Steel Company for delivery at the West Superior yards. The prices are holding up to 1.70c., without prospect of an immediate change in the quotations. The Sheet conditions have not changed during the week, except that the stocks have probably run a little lower through the sales that have been made. The prices remain firm at former quotations of 3.95c. on No. 28, One Pass Cold Rolled, and 2.50c. on No. 10 Blue Annealed, out of stock. The demand for Bars also keeps up, with conditions probably unchanged as to production. The producing capacity having been slightly increased through the opening of the mills of the Republic Iron & Steel Company, some of the stress has been taken off the market. The quotations are still 1.45c. on Steel Bars, and 1.50c. on Iron Bars, at the mills.

Old Material.—The Scrap trade is in somewhat of an unsettled state this week. The dealers have expected

that the lessening of the demand for the material would create a falling market, but the prices have not changed in the least. The buoyant force was probably a large purchase by the Republic people earlier in the week. The prices are quoted as follows: No. 1 Wrought, \$15 net; Heavy Steel, \$15 gross; Steel Rails, \$15 gross; Cast-Borings, \$6 net; Wrought Turnings, \$10 net.

Pittsburgh.

HAMILTON BUILDING, August 14, 1901.—(By Telegraph.)

Pig Iron.—The Bessemer Iron market is absolutely lifeless and there has been nothing done since our last report. The United States Steel Corporation are not buying any Iron, but are taking out promptly the Iron coming to them this month. There is no special weakness in the Bessemer Iron market, but if present conditions last some of the Valley furnaces will have to bank down. There has been little if any Iron sold for September, and if the strike runs into next month the leading Steel interest will hardly need any Iron on account of some of their mills being closed. The price of Bessemer is nominally \$15.25, Valley, but Iron can be bought at \$15 or less. Some of the Eastern furnaces are offering Iron in this market at low prices. Forge Iron is weaker, on account of so many puddling furnaces being closed, and \$13, at Valley furnace, could be shaded. Foundry Iron is very dull and the tone of the market is weak. We quote: Bessemer Iron, \$15 to \$15.25, Valley, or \$15.75 to \$16, Pittsburgh; Gray Forge, \$13, at Valley, or \$13.70, Pittsburgh; No. 1 Foundry, \$14.50; No. 2, \$14 to \$14.25, and No. 3, \$13.50 to \$13.75, Pittsburgh. We note a sale of 300 tons of Northern Forge at \$13.75, Pittsburgh.

Billets.—The Steel market is more active and better prices are being obtained. Billets for prompt shipment are bringing from \$24 to \$24.25, at maker's mill, and we note sales of about 2000 tons at those prices, mostly for August shipment. There is a good deal of inquiry from the East for Steel. Open Hearth Steel is from \$1 to \$2 a ton higher than Bessemer.

Muck Bar.—There is a good deal of inquiry for Muck Bar and we note sales of about 2000 tons at \$30.50, f.o.b. cars Pittsburgh.

(By Mail.)

Interest in the Iron trade continues to be centered on the strike, and while it is generally conceded that the Amalgamated Association is already defeated, yet it is possible that the strike may hang on for some time. On the other hand a collapse of the strike any day and a scamper of the men back to work would not be unexpected. The leading Tube interest has been crippled to some extent by the shutdown of two or three of their Skelp mills and also by the closing of the Riverside Tube plant at Wheeling. There is a notable scarcity in supply of Skelp, Sheets and Tin Plates. Coke grades of the latter for spot shipment are reported to have sold at \$7 a box. Prices of Iron and Steel Bars have also materially advanced, one interest quoting about \$2 a ton higher than before the strike started. The entire Iron market is strong, with the mills well sold up and very firm in their ideas as to prices. Buyers are apprehensive that there may be trouble in getting material later in the year and are placing orders ahead at high prices. We may note that a good deal of new capacity in Sheets, Tubes and Wire products is coming into the market, and this will relieve the situation very much as regards supply. Pig Iron continues quiet and prices are weak. Some low quotations on Bessemer Iron are being made in this market by Eastern furnaces. None of the large Steel interests are buying, and there may be a surplus of Iron unless the strike is quickly settled. Steel is in better demand and prices are a little higher. It is selling at \$24 to \$24.50, Pittsburgh, for prompt delivery.

Ferromanganese.—We quote 80 per cent. Ferromanganese in carloads and larger amounts at \$52.50, f.o.b. cars Pittsburgh. Small lots of a few tons are selling at \$55 to \$60 a ton.

Plates.—A good deal of tonnage is being placed, but mostly for small lots. The Government recently placed

about 3600 tons of Hull Plates, to go to six different navy yards. One of the lake boat building concerns is inquiring for about 350 tons for a new boat for the United States revenue marine cutter service. The leading Plate mills are full of tonnage, and in some cases slight premiums over regular prices are being paid for prompt deliveries. Several mills rolling Acid Steel are able to sell at better than pool prices right along. It should be noted that prices fixed by the Plate Association do not apply on tonnage for the Pacific coast or Canada. These prices are being rigidly held and we quote: Tank quality, $\frac{1}{4}$ -inch and heavier, 1.60c.; 3-16-inch, 1.70c.; under 3-16-inch and above No. 10, 1.75c.; Flange or Boiler Steel, 0.1c. advance over the base of Tank; Marine and Fire Box, American Boiler Manufacturers' Association specifications, 0.2c. advance over Tank; Still Bottom Steel, 0.3c. advance over Tank; Locomotive Fire Box Steel and equivalent specifications, 0.5c. advance over Tank, all f.o.b. Pittsburgh.

Sheets.—The Sheet market is in such condition that it is pretty hard to quote. There is a very active demand, with the mills oversold, and any one who has Sheets to ship out promptly can get almost any price. No. 27 Black Sheets have sold in small lots for spot shipment as high as 3.75c. to 3.85c. and No. 28 from 3.75c. up to 4c. in special cases. These prices, however, are much above the regular market. Buyers of Sheets who are prepared to place contracts, taking chances of delivery, could buy No. 27 at 3.25c., and No. 28 at 3.35c., or perhaps less. These prices are about \$5 a ton above prices of the American Sheet Steel Company, which, however, at this time are naturally nominal. A good deal of new Sheet capacity is coming into the market and this will relieve the situation somewhat as regards supply. Galvanized Sheets for prompt shipment are even harder to obtain than Black. We quote Galvanized at 70 and 10 to 70 and 5 off, but note that small lots for prompt shipment have sold as high as 70 off.

Structural Material.—There is a good run of tonnage in Structural Steel, a good many small jobs being placed. The Structural mills are all well filled up with tonnage and have not been affected in any way by the strike. Association prices are firmly held and we quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6 inches, 1.60c.; smaller sizes, 1.55c. to 1.60c.; Zees, 1.60c.; Tees, 1.65c.; Steel Bars, 1.40c. to 1.45c., half extras, at mill; Universal and Sheared Plates, 1.60c. All above prices are f.o.b. Pittsburgh.

Bars.—The shutdown of so many mills rolling Bars, together with the large demand, has caused a decided scarcity in both Iron and Steel Bars for prompt shipment, and prices are higher. The leading Bar mills are well filled up, and it is said there is only one concern, Republic Iron & Steel Company, who are in position to make delivery within two or three weeks. We quote Steel Bars at 1.45c. to 1.50c., with the usual advances for Open Hearth and high carbon stock. We quote Iron Bars at 1.50c. Valley, or 1.55c., Pittsburgh. We quote Hoops at 1.90c. and 2c. at mill. We quote Bands up to No. 12 gauge at 1.45c. to 1.50c., half extras, at mill.

Steel Rails.—Orders aggregating probably 25,000 tons have been placed at full prices. We quote at \$28, at mill.

Merchant Steel.—Tonnage continues large and the mills are very busy, both on old contracts and on new orders. Implement concerns are placing a good deal of tonnage and the Merchant Steel business this year has been very satisfactory, both as regards tonnage and prices. We quote: Tire Steel, 1.60c. to 1.70c.; Toe Calk, 1.85c. to 2c.; Open Hearth Spring, 2c. to 2.10c.; Plow Slabs, 2c. to 2.10c.; Cold Rolled Shafting, 55 per cent. off in carloads, 50 per cent. in less than carloads; Sleigh Shoe Steel, 1.65c. to 1.75c.; Tool Steel, 7c. per lb. and upward, according to quality. On Tool Steel the mills allow freight east of the Mississippi River. A few mills quote Tool Steel as low as 6c., but do not allow freight.

Skelp.—The scarcest article in the entire list is Skelp, and it can hardly be obtained for early delivery at any price. The leading Tube interest are seriously crippled in their sources of regular supply of Skelp and are buying from Eastern mills, and in fact wherever it can be found.

Prices have sharply advanced and we quote Grooved Iron Skelp at 2.05c. to 2.10c., and Sheared at 2.10c. to 2.15c. Grooved Steel Skelp is about 1.90c. to 2c., and Sheared 2c. to 2.05c. We note a sale of Sheared Steel Skelp at 2.05c., Pittsburgh.

Tubes.—The scarcity of Skelp and the shutdown of one of the largest mills rolling Tubes has crippled supply of both, and prices on Pipe are strong, with early delivery very hard to get. Jobbers are quoting higher prices and getting them where they are able to deliver Pipe. To consumers in small lots the prices are as follows:

Merchant Pipe.		Per cent.	Per cent.
		Black.	Galvd.
$\frac{1}{4}$ to $\frac{1}{2}$ inch and 11 to 12 inch.....	61	48	
$\frac{3}{4}$ to 10 inch.....	68½	56	
Casing, Random Lengths.			
2 to 3 inch.....	S. & S.	I. J.	
3½ to 4 inch.....	58	53½	
4½ to 12½ inch.....	63	59	
	65	61½	
Casing, Cut Lengths.			
2 to 3 inch.....	S. & S.	I. J.	
3½ to 4 inch.....	53½	59	
4½ to 12½ inch.....	58	55	
	61½	57½	
Boiler Tubes.		Up to 22 feet.	
		Per cent.	
Steel.			
1 inch to 1½ inch and 2½ inch to 5 inch, inclusive....	65½		
2 inch to 2½ inch, inclusive.....	60		
6 inch and larger.....	59		
Iron.			
1 inch to 1½ inch and 2½ inch.....	43½		
1½ inch to 2½ inch.....	43		
2½ inch to 13 inch.....	53		

Prices made by the mills to the jobbers are from 5 to 10 per cent. or more lower than the above, depending on the order.

Coke.—The Coke trade has not as yet been affected by the strike. Should it spread and close down some of the blast furnaces, then it would be necessary, of course, to restrict output of Coke. However, the Coke workers are well satisfied with their present condition, and it is not believed will give any trouble. Output of Coke last week in the Connellsville region was 237,897 tons. Some of the main line operators evidently have an over supply of Furnace Coke and are offering it at very low prices in Eastern markets. Some brands of Furnace Coke have sold as low as \$1.30 to \$1.40 a ton. We quote strictly Connellsville Furnace Coke at \$1.75c. to \$2 a ton, and 72-hour Foundry at \$2.25 to \$2.50 a ton. We quote Main Line Furnace Coke \$1.50 to \$1.60, and Foundry at \$1.75 to \$2 a ton.

Cincinnati.

FIFTH AND MAIN STS., August 14, 1901.—(By Telegraph.)

In the territory immediately tributary to Cincinnati the Pig Iron trade has been tolerably quiet throughout the past week. Houses with agency connections in other centers report a moderately fair amount of business coming in from the East, and also some little from the North, but take it as a whole the tonnage has been just what might be expected under the circumstances, small. Judging from the amount of inquiry in sight trading will continue slack for the present. Now as regards the situation it has not become any more simple than it was a week ago. Southern furnaces are claiming to hold to the agreement figures, which are represented by the maximum quotations given herewith. In the few competitions, however, which have arisen, the salesmen who did not get the orders claim to have pretty good presumptive evidence that the agreement figures were cut 25c. to 35c. This may or may not be true. One thing, however, is certain—that the asking prices for Iron and the figures at which it is actually being sold are 25c. to 50c. higher than they were two weeks ago. Freight rate from Birmingham is \$2.75 to this point; from Hanging Rock district, \$1. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1.....	\$13.50 to \$13.75
Southern Coke, No. 2.....	13.00 to 13.25
Southern Coke, No. 3.....	12.50 to 12.75
Southern Coke, No. 4.....	12.00 to 12.25
Southern Coke, No. 1 Soft.....	13.50 to 13.75
Southern Coke, No. 2 Soft.....	13.00 to 13.25
Southern Coke, Gray Forge.....	12.00 to 12.25
Southern Coke, Mottled.....	12.00 to 12.25
Ohio Silvery, No. 1.....	15.50 to 16.00
Ohio Silvery, No. 2.....	14.50 to 15.00
Lake Superior Coke, No. 1.....	14.50 to 15.00

Lake Superior Coke, No. 2.....	14.00 to	14.50
Lake Superior Coke, No. 3.....	13.50 to	14.00
Southern Basic.....	13.75 to	14.00

Car Wheel and Malleable Irons.

Standard Southern Car Wheel, chilling grades.....	\$18.25 to	\$18.75
Standard Southern Car Wheel, No. 2.....	17.25 to	17.75
Lake Superior Car Wheel and Malleable.....	18.50 to	19.00

Plates and Bars.—The market is quite strong, and especially on Plates and Sheets. Prices are higher and the outlook is quite good. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.60c., with half extras; same in small lots, 1.80c., with full extras; Steel Bars, in carload lots, 1.55c., with half extras; Base Angles, in carload lots, 1.80c.; Plates, $\frac{1}{4}$ inch and heavier, 1.90c. to 2c.; 3-16 inch, 2.10c.; Sheets, No. 16, 2.90c. to 3c.

Old Material.—There is a good feeling in the market and prices are somewhat higher on some lines. Business has been quite fair. We quote dealers' buying prices, f.o.b. Cincinnati, as follows: No. 1 Wrought Railroad Scrap, per net ton, \$13.50 to \$14; Cast Railroad and Machine Scrap, \$12.25 to \$12.75; Iron Axles, \$19 to \$20; Iron Rails, \$17.25 to \$18.25; Steel Rails, rolling mill lengths, \$14.75 to \$15.25; Short Lengths, \$13.75 to \$14; Car Wheels, \$15.75. All prices except No. 1 Wrought on the basis of gross tons.

New York.

NEW YORK, August 14, 1901.

Pig Iron.—In the metropolitan district very little new business is reported and sellers seem somewhat eager to get orders for future delivery on their books. Prices are unchanged, although the pressure to market on the part of some Southern sellers has ceased. It is understood that the splendid new Wharton furnace at Port Oram, N. J., is to go into blast to-day. We quote: Lehigh, Schuylkill and Virginia Irons, No. 1, \$16 to \$17.50; No. 2 X, \$14.75 to \$15.75; No. 2 Plain, \$14 to \$14.50; Gray Forge, \$14 to \$14.50; Tennessee and Alabama brands, No. 1 Foundry, \$14.50 to \$15; No. 2 Foundry, \$14 to \$14.50; No. 1 Soft, \$14.50 to \$15; No. 2 Soft, \$14 to \$14.50; No. 3 Foundry, \$13.25 to \$13.50; No. 4 Foundry, \$12.75 to \$13.25; Gray Forge, \$12.75 to \$13.

Cast Iron Pipe.—The run of small orders continues, but nothing of any magnitude is on the *tapis* for the present. The season has been an exceptionally prosperous one and the demand for stock sizes in small lots has been unprecedented.

Steel Rails.—The market is quiet. We quote \$28 for Standard Sections, \$33 to \$33.50 for Girder Rails, and \$22 to \$23 for Relays. We quote Spikes, 1.80c. to 1.85c.; Splice Bars, 1.50c. to 1.60c.; Hexagon Track Bolts, 2.65c. to 2.70c., at mill.

Finished Iron and Steel.—Among the orders placed locally we may note about 1000 tons for substations on the Manhattan road, and about 2000 tons for a new building at William and Cedar streets. The American Bridge Company have secured a number of good contracts. These include about 3000 tons bridge work for the Chicago, Milwaukee & St. Paul Road, 1800 tons for the Delaware, Lackawanna & Western, 3000 tons for the Toledo Belt and the Bessemer & Lake Erie, 600 tons for the new Reading shops, 500 tons for a new foundry and machine shops at Saratoga, a round lot for the Keystone Bank, at Pittsburgh, 1100 tons for a power plant at Rochester, 800 tons for ordnance and machine shops at the Boston and League Island navy yards, and about 4300 tons for two new bascule bridges at Chicago and a highway bridge at McConnellsville, Ohio. We quote as follows at tidewater: Beams, Channels and Zees, 1.75c. to 1.80c.; Angles, 1.75c. to 1.80c.; Tees, 1.80c. to 1.85c.; Bulb Angles and Deck Beams, 2c.; Sheared Steel Plates are 1.80c. to 1.85c. for Tank, 1.90c. to 1.95c. for Flange, 2c. to 2.05c. for Fire Box. Charcoal Iron Plates are held at 2.25c. for C. H. No. 1, 2.75c. for Flange, and 3.25c. for Fire Box. Refined Bars are 1.58c. to 1.60c.; Soft Steel Bars, 1.62 $\frac{1}{2}$ c. to 1.65c.

The Cleveland Electric Railway Company are breaking ground for another large addition to their power plant and have just placed contracts for a 2500 horsepower Cooper Corliss noncondensing cross compound

engine, to be direct connected to a 1600 kw. General Electric generator. They are tearing out all of their old return tubular boilers and are installing 14 260 horsepower Sterling boilers. They are also erecting a large storage battery station.

Metal Market.

NEW YORK, August 14, 1901.

Pig Tin.—During the week under review business was not active. Spot sold in a small way from 27.25c. down to 27c., which was the closing figure to-day. August sold at 25.75c. to 26c., the first half of September 25 $\frac{1}{4}$ c. to 26c., November 24 $\frac{1}{4}$ c. To-day shipments from the East are offered on a basis of 24.50c., c.i.f. New York. The London market on Thursday last opened at £114 for spot and £110 10s. for futures. On the strength of purchases from this side it advanced to £117 for spot and £113 for futures, but closed easy to-day at £115 5s. for spot and £111 for futures. Large arrivals will be due here early next week.

Copper.—This market is entirely nominal at 16 $\frac{1}{4}$ c. for Lake and 16 $\frac{1}{4}$ c. for Electrolytic and Casting. The London market has continued in its sharp decline and closed to-day at £65 8s. 9d. for spot and £65 17s. 6d. for futures. These are the lowest prices reached in the last three years. Best Selected declined 15 shillings to £72 5s. Exports thus far this month are the smallest on record, amounting to barely 1500 tons, as against the total of 13,849 tons for August of last year. Imports since the first of this month amounted to about 2800 tons, and this is the first time on record when the imports were almost double the amount of the exports. The arrivals here consisted chiefly of Chili Bars and Australian. The remarkable comparison between the export and import figures is not so astonishing when the fact is taken into consideration that last year at this time Lake Copper was quoted here 16 $\frac{1}{4}$ c., or just the same as the present figure, and Standard Copper in London was quoted at an equivalent of 15.75c.; the present quotation in London is at an equivalent of only 13.85c. That importation is an object where practicable is apparent.

Pig Lead.—There is no change in this market, and a quiet, steady business is being transacted at the prices of the American Smelting & Refining Company—namely, 4.37 $\frac{1}{2}$ c., f.o.b. New York, and 4.32 $\frac{1}{2}$ c., St. Louis. London has declined from £11 17s. 6d. to £11 13s. 9d.

Spelter.—Is extremely dull at unchanged prices. This market is still quoted 3.90c. to 3.95c. The London market has recovered 2 shillings and 6 pence, being quoted to-day £16 12s. 6d.

Antimony.—Is lower, both in London and in this market. Hallett's is now quoted 8 $\frac{1}{4}$ c. to 8 $\frac{3}{4}$ c., and other brands, with the exception of Cookson's, are quoted 8 $\frac{1}{4}$ c. to 8 $\frac{3}{4}$ c. Cookson's remains nominally unchanged at 10 $\frac{1}{4}$ c.

Nickel.—Is unchanged, prices being on a basis of 60c. for lots not covered by yearly contract.

Quicksilver.—Prices are unchanged from last week, being \$51 per flask of 76 $\frac{1}{2}$ lbs. in lots of 50 flasks and more. London is unchanged at £9.

Tin Plate.—There is no change in the situation, all of the business transacted is passing through brokers' hands at unfixed and advancing prices. The London market advanced from 15 shillings 3 pence of last week to 15 shillings 7 $\frac{1}{2}$ pence. About 8000 boxes arrived from Liverpool during the week. The steamer from Swansea is due here on Saturday, and it is expected that she will carry fully as large a cargo as last week's steamer, which had 27,000 boxes aboard. The fact that a portion of these shipments are to be re-exported in their manufactured state should, however, not be lost sight of.

There has just been issued the eighth annual statistical report issued jointly by the Metallgesellschaft and the Metallurgische Gesellschaft A. G. of Frankfurt-on-the-Main, Germany, whose representative in this country is the American Metal Company of New York. It covers the world's statistics of Lead, Copper, Zinc, Tin, Silver, Nickel, Aluminum and Quicksilver, both as to production and consumption.

The New York Machinery Market.

NEW YORK, August 14, 1901.

In the instance of machine tool business trade has improved somewhat during the week under review. As far as small transient trade is concerned, the improvement has been slight, but for fair sized undertakings a number of good purchases have been made. Inquiry also was much better, and, while the transactions involved may not be consummated immediately the inquiries are said to be of a good, healthy sort that will necessarily terminate in good business eventually. Prices are unchanged and there are no indications pointing to anything other than a steady market. Several parties were in the market for good sized lots, which were not closed, but it is expected that they will be in the course of a few days.

Among the heaviest purchasers during the week were the two great locomotive building concerns, who are attracting considerable attention at this time. The Baldwin interests, on the one hand, are buying heavily for the enlargement of their Philadelphia plant. The American Locomotive Company are heavy purchasers, as they are improving and enlarging all of their constituent plants. The Baldwin Company are taking up all of the available and desirable medium sized machine tools that they can lay hands on. During the week they practically cleaned up the stock of such tools as they desired at the Bement-Miles plant, and left some substantial orders for tools that were not in stock. They also did considerable shopping about, picking up tools here and there, so as to be ready to start right in as soon as their new building is completed.

Besides purchasing additional new equipment for their Schenectady plant, the American Locomotive Company bought a considerable quantity to be installed at Dunkirk, N. Y., in the Brooks plant. A list is now being prepared which will include a large amount of machinery to be used in the enlargement of the company's Richmond plant.

An additional order for machine tools has been received from the British Westinghouse Company by the Niles-Bement-Pond Company. It was for special boring and turning mills, milling machines, &c. In value it amounted to more than \$35,000, and, added to the other orders which this American house have received from the British Westinghouse interests, it brings the total up to a figure a little above the half million dollar mark. The machinery will be produced at the Hamilton and Hartford plants. The Niles-Bement-Pond Company are especially sanguine over the present condition of the heavy tool business, and report that last month was productive of more business than any other in the company's history.

One of the largest orders for milling machines placed lately was recently given out by the Weston Electrical Instrument Company of Waverly, N. J. The order involved some 25 plain and universal machines, and was awarded to the Cincinnati Milling Machine Company. It is simply a portion of the new machinery which has been ordered recently by the Weston Company for installation in their new Waverly plant.

Among the purchasers of fair sized lots of machine tools during the week were a concern located near New York, who are about to build small electric motors, and a cutlery manufacturer located at Keyport, N. J. A firm at New Castle, Pa., also bought a small outfit for the building of wire drawing machinery.

Orders are being placed by the Hydrocarbon Burner Company of 197 Fulton street, New York, for screw machines, punches, shears, presses and other machine tools. The machinery is to be installed in an extension to the company's new plant, which is located at Jersey City, N. J. Thomas A. Mack is the president of the company. The concern manufacture oil stoves and burners.

The Safety Insulated Wire & Cable Company of 229 West Twenty-eighth street, New York, are placing orders for a considerable quantity of machinery to be installed in a large new plant which they are building at Bayonne, N. J. It is stated in the trade that the company intend

moving their entire New York plant to Bayonne. Bids for a 500 horse-power engine were received last week.

There are a number of large projects under way which will require new engines, boilers, power transmission and special machinery. Most conspicuous in this connection are the large new sugar refineries which are being planned and constructed. Last week mention was made of the Knickerbocker Sugar Refining Company's plant, which is being planned for Shadyside, N. J. No specifications for equipment have been completed as yet. The George M. Newhall Engineering Company of 43 Cedar street are now engaged in the preparation of plans for the buildings. The latter concern are now purchasing heavily for the equipment of a very large refinery, which is being built in Philadelphia for the Pennsylvania Sugar Refining Company. The business is going through the Philadelphia offices of the George M. Newhall Engineering Company. The Philadelphia plant is to have a capacity of from 3000 to 3500 barrels of refined sugar per day.

Specifications are being prepared by the Eastwick Engineering Company of suite 1939, Park Row Building, New York, for several new sugar refineries to be built in Cuba and Porto Rico. It is expected that some of the matters will be ready for estimating within a week or two.

The American Consolidated Pine Fiber Company, whose principal offices are located at 135 Broadway, are purchasing equipment for a number of extensions to plants in the South controlled by the company. An entire equipment for a new plant to be erected at Cronley, N. C. is being purchased. The concern are producers of fiber used in the manufacture of matting, rope, mattresses and upholstery.

The building of a large electrolytic copper plant is being contemplated by the Orford Copper Company of 99 John street, New York. It is proposed to erect it in connection with the company's present smelting plant at Constable Hook, N. J. If it is definitely decided to proceed with the project and on the lines as now suggested the plant will have a capacity for about 1000 tons per month and will require a considerable quantity of machinery, such as an electric generating plant, trolleys, hoists and conveying machinery, furnaces, &c.

The Thomas Hewitt's Sons Company of East Newark, N. J., are having plans prepared by architect J. B. Warren of that borough for a new foundry which will contain the latest equipment. An addition to the pattern and machine shops is also contemplated, which will require iron and wood working machinery.

Silas B. Brower, architect, of East Orange, N. J., has just completed plans for a new electric generating and pumping plant to be driven by steam and operated in conjunction with the water power plant now being erected at Massena, N. Y., by the St. Lawrence Power Company.

The purchasing department of the Automobile Company of America, Marion, Jersey City, N. J., is anxious to obtain catalogues of machinery and supplies.

In connection with the bids received at the Navy Department on July 23 the following awards have been made on machinery to be distributed among the various navy yards as indicated:

New York Navy Yard:

- Class 22. One 10-ton cupola, one 7-ton cupola, one 5-ton cupola—S. Obermayer Company, Cincinnati, Ohio, \$3153.
- Class 23. Two rotary positive pressure blowers—J. W. Paxson Company, Philadelphia, \$5477.
- Class 25. One 6-ton fixed vertical gap riveting machine for boiler flues—Manning, Maxwell & Moore, New York, \$1400.
- Class 26. Two high pressure hydraulic double plunger test pumps—H. A. Rogers, 19 John street, New York, \$287.50.
- Class 27. One No. 9 plain grinding machine—Walter H. Foster, New York, \$1860.

Portsmouth Navy Yard:

- Class 2. One double frame 2000-pound steam hammer—Bement, Miles & Co., Philadelphia, \$1824.
- Class 3. One single furnace planing machine—George Place, New York, \$475.
- Class 4. Six bench trimmers—Open market.
- Class 5. One improved jointing and facing machine for buzz planer—S. A. Woods Machine Company, Boston, \$197.50.
- Class 6. One vertical milling machine—Niles Tool Works Company, Hamilton, Ohio, \$1845.

- Class 7. Six 10 horse-power 110 volt direct current, low speed multipolar electric motors, shunt wound, for 150 revolutions per minute—McCoy Engineering Company, Baltimore, Md., \$2790.
- Class 1. One pattern makers' swing gap lathe—Manning, Maxwell & Moore, New York, \$465.
- Class 2. One No. 2 double turret automatic screw machine with tools—Spencer Automatic Machine Screw Company, Hartford, Conn., \$1671.50.
- Class 3. One plate rolling machine—Bement, Miles & Co., Philadelphia, \$4200.
- Class 4. One plate planing machine—Manning, Maxwell & Moore, New York, \$2970.
- Class 1. One open side planer—Manning, Maxwell & Moore, New York, \$4000.
- Class 3. One 8-foot vertical boring and turning mill—Bement, Miles & Co., Philadelphia, \$3724.
- Class 4. One horizontal boring, drilling and milling machine—Bement, Miles & Co., Philadelphia, \$2007.
- Class 5. One 20-inch back geared engine lathe—Manning, Maxwell & Moore, New York, \$625.
- Class 6. One 20-inch engine lathe—Manning, Maxwell & Moore, New York, \$713.

Iron and Industrial Stocks.

Generally speaking, the volume of business in steel stocks has been lighter during the past week. The issues of the United States Steel Corporation showed steady gains as the weakness of the Amalgamated Association and the aggressive campaign of the Steel Corporation became more and more evident. It is reported that previous to the strike the underwriting syndicate had nearly wound up, and as high as 28 and 29 per cent. profit had been offered to participants in the underwriting, on the money actually paid in, which was 12½ per cent. of the subscriptions. It is assumed that since the strike, and notably on the first break in the stock, the syndicate managers must have accumulated fairly large lines of the common and the preferred.

	Bid.	Asked.
E. W. Bliss, common.....	145	152
E. W. Bliss, preferred.....	130	140
Cramp's Shipyard stock.....	79	82
Empire Iron & Steel, common.....	4	5
Empire Iron & Steel, preferred.....	30	35
National Enam. & St., common.....	22	25
National Enam. & St., preferred.....	85	88
New Haven.....	47½	5
Otis Elevator, common.....	32½	34
Otis Elevator, preferred.....	97	98
Pratt & Whitney, preferred.....	85	90
U. S. Cast Iron Pipe Company, common.....	6¼	7
U. S. Cast Iron Pipe Company, preferred.....	33	34
U. S. Projectile.....	119	..
Va. C. I. & C., stock.....	7	9
Va. C. I. & C., bonds.....	40	42
H. R. Worthington, preferred.....	111	113
American Can Company, common.....	24¼	24¾
American Can Company, preferred.....	73¾	74½

Susquehanna Iron & Steel Company.—The following balance sheet was presented at the second annual meeting of the Susquehanna Iron & Steel Company:

Assets.	
Plants, implements and material on hand.....	\$1,138,258
Accounts receivable.....	192,150
Merchandise.....	364,352
Cash.....	22,498
Total.....	\$1,717,259
Liabilities.	
Capital.....	\$1,500,000
Accounts payable.....	212,698
Surplus.....	4,560
Total.....	\$1,717,259

President Porter's report referred to the very unfavorable condition of the iron market during the first six months of the fiscal year, when there was a heavy depreciation in the value of pig iron on hand. Owing to these conditions, the management deemed it advisable to take some low priced contracts in order to keep the plants in full operation, relying upon current orders for a more favorable market. The orders now in hand are sufficient to keep the plants in operation to November 1, and all of the company's plants, with the exception of the Vesta Furnace, are now in operation. The Aurora Furnace was taken out of blast in July, 1900, and put in again May 23, 1901, after an expenditure of \$11,000 in improvements. The company have paid in dividends in the first two years of their existence \$360,000, at the rate of 24 per cent. in first half, and at the rate of 12 per cent. in the second half of the first year; and 6 per cent. the second year.

National Enameling & Stamping Company.—The stockholders of the National Enameling & Stamping Company have voted to issue bonds to the amount of \$2,500,000 of 5 per cent. bonds, which the St. Louis Trust Company have agreed to buy. On July 1, 1901, the total mortgage and floating debt of the company amounted approximately to \$2,650,000, of which \$525,000 is represented by mortgages which were upon two of the smaller plants of the company at the time they were acquired, and the balance of \$2,125,000 represents bills payable. The proceeds from the sale of bonds, together with balance on hand, will satisfy all the obligations of the company and leave a surplus. The company have liquid assets consisting of cash, merchandise, bills and accounts receivable to the amount of upward of \$5,200,000. Under the terms of the mortgage 10 per cent. of the entire issue of bonds is to be paid off annually at par. The business year of the company has been changed from January 1 to July 1, for the sake of convenience in stock taking and shutting down the mills. The cost of the steel plant and rolling mills at Granite City and St. Louis, now completed, and the extensions and improvements in the other plants of the company, for which no stock has been issued, amounts to \$2,500,000. The steel plant and rolling mills were not completed and put into full operation until about six months ago. The report of the National Enameling & Stamping Company as of June 29, 1901, follows:

The results of the operations during the period show a profit of.....	\$1,127,505.99
Out of which dividends have been paid on the 7 per cent. preferred stock, absorbing.....	817,068.00

Leaving a balance of.....	\$310,437.99
Which added to the balance to the credit of profit and loss account, at December 31, 1899, of.....	\$831,876.59
Less sundry adjustments made during the year 1900, appertaining to the results of 1899.....	31,897.31
	799,979.28

Makes the net surplus at date..... \$1,110,417.27

The general balance sheet as of June 29 shows:

Assets.	
Real estate, buildings, machinery, plant, tools, good will, &c., acquired from vendors, and cost of new rolling mills, buildings and other improvements and additions to property.....	\$22,447,420.25
Sheet mills extraordinary expenditure.....	\$21,845.50
Less two-thirds charged off against profits for the period.....	14,563.67
	7,281.83
Expense of organization and incorporation of company, including revenue stamps and State taxes—Balance as per last balance sheet.....	\$87,039.69
Less sundry credits during period.....	100.15
	\$86,939.54
Less amount charged to profit and loss account.....	29,939.54
	57,000.00
Expenditure on new catalogues.....	\$16,656.19
Less amount charged to profit and loss account.....	4,000.00
	12,656.19
Stocks of merchandise, materials and supplies on hand.....	3,770,209.25
Accounts and bills receivable.....	1,114,280.33
Payments in advance for next year's business.....	49,822.69
Accrued interest on deposits.....	1,997.29
Cash at bankers and on hand.....	525,722.08
Total.....	\$27,986,389.91

Liabilities.	
Capital stock authorized:	
100,000 shares of 7 per cent. preferred stock at \$100 each.....	\$10,000,000.00
200,000 shares of common stock at \$100 each.....	20,000,000.00
300,000.....	\$30,000,000.00
Capital stock issued:	
83,966 shares of 7 per cent. preferred stock of \$100 each.....	\$8,396,600.00
154,418 shares of common stock of \$100 each.....	15,441,800.00
	\$23,838,400.00
Mortgages assumed from vendors on acquiring properties.....	525,000.00
Bills payable.....	2,134,457.21
Sundry creditors.....	311,522.42
Reserve for discounts, allowances and bad debts.....	66,593.01
Profit and loss account:	
Balance to credit of account at December 31, 1899, as per last balance sheet.....	\$831,876.59
Less sundry adjustments made during the year 1900, appertaining to the profits of 1899.....	31,897.31
	799,979.28
Add net profit for the 18 months to June 29, 1901, as per statement.....	\$1,127,505.99
Less dividends on 7 per cent. preferred stock.....	817,068.00
	310,437.99
Total.....	\$27,986,389.91

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING AUGUST 14, 1901

Cap'l Issued.		Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday.	Closing quotations.	Sales.
\$10,000,000	Am. Bicycle Co., Com.....								
20,000,000	Am. Bicycle Co., Pref.....								
10,000,000	Am. Bicycle Co., Bonds.....								
29,000,000	Am. Car & Foundry, Com..	-28%	28% 29%	28 -28½	28% 29	20¼-20%	-20%	29%	4,900
29,000,000	Am. Car & Fndry, Pref. §..	-83	83 -83½	82½-83			-84¼	84¼	1,300
7,500,000	Bethlehem Iron†.....	61½-61¾	-61¾		61% 61%		-61½		100
15,000,000	Bethlehem Steel‡.....	-23				-23	-23		1,900
7,974,350	Cambria Iron, Phila.*.....		-48			-48			50
16,000,000	Cambria Steel**.....	-22	-22½			22½-22¾	23 -23¾	23	6,600
17,000,000	Colorado Fuel & Iron.....	92 -94½				-95½	95¼-96¼	96	1,600
24,410,900	Crucible Steel, Com.....								
24,399,500	Crucible Steel, Pref.....								
1,975,000	Diamond State Steel§§.....	-3	-3	-3		-3			300
15,000,000	International Pump, Com..		-37						100
8,850,000	International Pump, Pref..								
11,000,000	International Silver.....		-6¾						200
10,750,000	Penna., new, Com., Phila..								
16,500,000	Penna., new, Pref., Phila. §.								
12,500,000	Pressed Steel, Com.....	-41%	42 -42%	-42%	-41%	-42%			1,200
12,500,000	Pressed Steel, Pref.....								
27,191,000	Repub. Iron & Steel, Com..	-19%	-19%	18½-19¼	19% 19¼	19% 20	20 -20%	20 -20%	4,300
20,306,900	Repub. Iron & Steel, Pref..	-74	-74	73½-74	73½-74	74 -74½	74½-75	74½-75	2,300
7,500,000	Sloss-Sheffield S. & I., Com.								
6,700,000	Sloss-Sheffield S. & I., Pref. §					-80			100
20,000,000	Tennessee Coal & Iron.....	59½-61½	59½-61	59½-59¾	60¼-61	60% 61½	61½-62	61½	6,700
1,500,000	Tidewater Steel||.....	6¼- 6%	6½- 7		- 6%	- 6%			600
506,473,400	U. S. Steel Co., Com.|||.....	40% 43	41½-42%	41% 41½	42 -43%	43½-44	43% 44	44	220,500
508,486,300	U. S. Steel Co., Pref.|||.....	90% 92	90% 91%	90% 90%	91% 92½	92% 93%	92% 93%	93	111,600
1,500,000	Warwick I. & S.||.....	- 7%	- 7%			- 7			16,000

Cambria Steel receipts, 16,000.

Preferred stocks 7% cumulative unless otherwise stated. § 7% Non-Cu. §§ New stock. | Par \$10. † Par \$50. § paid in. || Authorized Capital \$550,000,000 Common; \$555,000,000 Preferred; * Par \$50. ** \$10.50 per share paid in. † 6% guaranteed by Beth. Steel Co. Late Philadelphia sales by telegraph. ‡ Ex-dividend.

Bonded Indebtedness: American Bicycle Co., \$10,000,000 sinking fund gold debentures 5%; Cambria Iron Co., \$2,000,000 6% debenture 20-year bonds, 1917, payable option 5 years, assumed by Cambria Steel Co.; Diamond State Steel Co., property leased from Diamond State Steel Co. at 4% on \$1,000,000, \$6.25 on Steel stock paid in, \$1.25 called for June 1st, total capital \$2,000,000; International Pump; Blake & Knowles S. P. Co. \$1,000,000 6%; Tennessee C. I. & R. R. Co., \$8,367,000 6%, \$1,114,000 7%, \$1,000,000 7% cu. pref.; Pennsylvania Steel, \$1,000,000 5% Steelton 1st, 1917, \$2,000,000 5% Sparrow's Point 1st, 1922, \$4,000,000 consolidated, both plants; Bethlehem Iron, \$1,351,000 5% maturing 1907, interest and principal guaranteed by Bethlehem Steel Co.; Republic Iron & Steel, none; Warwick Iron & Steel, none; Colorado Fuel & Iron Co., Col. Fuel Co. Gen. Mort. 6% \$880,000, Col. Coal & Iron Con. Mort. 6% \$2,648,000, Col. Fuel & Iron Gen. Mort. 5% \$2,874,000, also outstanding \$2,000,000 preferred stock; Sloss-Sheffield S. & I. Co., Sloss I. & S. first mortgage 6%, \$2,000,000, Sloss I. & S. general mortgage 4½% \$2,000,000. U. S. Steel Corporation \$304,000,000 5% gold bonds, also Am. S. & W. Co. \$180,656, Federal Steel Co. \$9,822,000 Illinois 5%, \$7,417,000 E. J. & E. R. R. 5%, \$1,600,000 Johnson 6%, \$6,732,000 D. & I. R. R. R. 5% \$1,000,000 2d D. & I. R. R. R. 6%, \$10,000 land grant D. & I. R. R. 5%; National Steel \$2,561,000 6%

The United States Cast Iron Pipe Company.—An interesting balance sheet has just been issued by the United States Cast Iron Pipe & Foundry Company, bearing the date of May 31, 1901. It is as follows:

BALANCE SHEET AS OF DATE MAY 31, 1901.

Assets.	
Treasury stock.....	\$347,555.00
Unissued stock.....	5,000,000.00
Sinking fund.....	31,797.00
Plant investment.....	24,066,941.35
Cash.....	260,568.17
Inventory of raw and manufactured material....	1,429,868.56
Accounts receivable.....	1,854,136.20
Total.....	\$32,990,866.28

Liabilities.	
Preferred stock.....	\$15,000,000.00
Common stock.....	15,000,000.00
Bonds of American Pipe & Foundry Company....	1,194,000.00
Anniston mortgage bonds.....	105,000.00
Bills and accounts payable.....	1,191,505.76
Total.....	\$32,490,505.76

Amount now at credit of profit and loss account.. \$500,360.52

First Vice-President George B. Hayes stated that as the plants were constantly being improved and extended and as the company were following a conservative course no dividends would be paid on the common stock as yet. It is intended to continue the work of improving the plants during the ensuing year.

Dividends.—The Pratt & Whitney Company have declared the regular quarterly dividend of 1½ per cent. on their preferred stock, payable August 15. Books close August 10 and reopen August 16.

Work is being started on the new plant of the Webster, Camp & Lane Company at South Akron, Ohio. Contracts for the steel work of the building have been awarded to the American Bridge Company. Thirteen acres of ground will be covered and among the buildings will be a machine shop, blacksmith shop, boiler shop, pattern shop, power plant and office building. The foundry building will be 150 x 400 feet, and other buildings will be correspondingly large. The company are

now so rushed with contracts for hoisting and conveying machinery that they are having much of their work done outside. The new plant will give them several times the capacity of the present.

In May, 1899, the Gruson Iron Works were incorporated under the laws of the State of New York and capitalized at \$500,000. In the same year the corporation purchased at Eddystone, Pa., a tract of land extending from the Philadelphia, Wilmington & Baltimore Railroad Company's right of way to the Delaware River, comprising 186 acres of ground. Large buildings have been erected with the special design for use in the manufacture of Gruson chilled iron armor for coast defense, Gruson turrets, gun carriages, chilled and unchilled castings of iron and steel, machinery of every kind for mining, metallurgical and mechanical purposes. The company have acquired the exclusive right in this country to manufacture and blend the iron and steel made by the Gruson process, under the patents granted by the United States to the inventor, which now carries since its first inception, the exclusive rights for the Sandwich Islands, Porto Rico and the Philippines Archipelago. The works are so near completion that the management expect to begin active operations on September 1 next, and will start with a large force of employees, which will be augmented as business demands may make necessary.

The partnership existing between Philip S. Justice and J. Howard Mitchell, under the firm name of Philip S. Justice & Co., was dissolved on July 31, on account of the death of Mr. Justice, and the business of the firm will be settled by the surviving partner. J. Howard and Philip Justice Mitchell have associated themselves under the old firm name of Philip S. Justice & Co., and will continue the business in railroad supplies at 14 North Fifth street, Philadelphia.

The Tidewater Steel Company of Chester Pa., have decided to erect an open hearth plant.

HARDWARE.

If the claim of the jobber to be the best distributor for the manufacturer is a sound one, then in all consistency the jobber should distribute his goods through the dealer and not expect, save in exceptional cases, to go to the consumer. It is incumbent upon the jobber to protect his customer. It is both bad business and bad policy to do otherwise. The jobber cannot successfully sell his goods to the consumer, and should be content to confine himself to his natural trade. The railroad trade, however, is regarded by many as a separate and distinct business and a fair field for all classes of trade. The same is true of supplies for large manufacturers. Both of these latter are supplied by those who can do so to the best advantage. Both the interest and duty of the jobber lie in the direction of protecting the retailer, instead of imitating the catalogue houses in endeavoring to go to the consuming trade direct.

The importance to the trade of the competition of catalogue houses and department stores invests it with interest to all who are watching the course of things and forming a correct appreciation of trade tendencies. The communications printed on another page will, therefore, interest our readers as presenting a view of the subject which is not always taken. There is no doubt of the seriousness of the problem presented by this competition. The first effects of it are felt by the retail merchants, whose business is thus reduced both in volume and in profit, but the subject also presents perplexing problems to the jobber and manufacturer, both of whom have to determine the policy they will pursue under the new conditions.

Many merchants doing a business of moderate extent do not give to freight matters the attention they deserve. The cost of getting in stock is one of the very important items in doing business, and one where judgment and watchfulness are needed and are paid for in the dollars saved. Each individual item in the freight account is small, but the year's total is a goodly sum, even where every care has been exercised.

One of the small leaks in business comes from "back orders," or the inability of the house to whom the order is sent to ship it complete. Such items as are short are put on what is called the "back order book," to be forwarded later, when new stock is received. Perhaps the freight cost of these back orders is the smallest part of the annoyance they cause. They probably are inevitable, but they are always irritatingly unwelcome. Very often, altogether too often, when an invoice is received, the dealer finds everything there that he was in no hurry for, while the one item most wanted has been put on the back order book.

But in addition to the annoyance the back order causes it adds a great many small items to the freight account. It is not improbable that the day may come when a house that sends goods on a back order will be expected to pay the carrying charges on such shipment. In every way this would seem fair.

Condition of Trade.

The strike among the Steel workers is having a somewhat stimulating effect upon the Hardware business generally. Manufacturers not producing their own raw material complain of trouble in obtaining it, and are behind on orders for their finished products. Notwithstanding the hopeful view taken by the trade of the outcome of the labor disturbance, uneasiness has been caused by the fear that goods would be difficult to get when wanted, and that prices might advance. In anticipation of these conditions and of a large fall trade, jobbers are placing orders for larger quantities of goods and ordering earlier than usual. Prices are remarkably even considering the demand and the scarcity in many lines of goods. Few changes have taken place in values, and the market is, as a rule, firm.

Chicago.

(By Telegraph.)

If there is any difference in the buying of Shelf Hardware from a week or two ago, it is increasing. A noticeable feature is that orders are averaging somewhat larger. The demand extends to all kinds of fall goods, and from the more generous size of orders it is surmised that merchants in some instances are stocking up more freely than they have been accustomed to do recently. For this policy there is warrant in the difficulty of procuring goods and also the rising market along some lines. The effect of the steel strike is believed to be seen in this growing trade. Quite a number of new stocks of Hardware are also being purchased. It is not only the excellent financial condition of Western farmers that explains this large trade, for the local orders at Chicago and at other large cities are just now almost as pronounced as are the calls from the country. The city trade runs largely to Builders' Hardware and to Mechanics' Tools, two departments which are very active. The amount of Hardware directly involved in a shortened corn crop is very small, mainly Corn Knives and Husking Pegs, for which demand has suffered somewhat when compared with the general increase of business in almost all other lines. For all goods into which Sheets enter the demand is especially brisk, and it is common for stocks to be exhausted or for orders to greatly exceed stocks on hand. For Heavy Hardware the demand is not quite so active this week as last, which is the probable result of the turn in the steel strike for the better. The volume, however, is exceedingly satisfactory for August.

San Francisco.

MILLER, SLOSS & SCOTT.—San Francisco is at present involved in a series of very serious strikes, which started on May 20 with the machinists' strike, which is still on. The Union Iron Works, the Risdon Iron & Locomotive Works, and other large manufacturing concerns have built inclosures within their works, and now have quite a large number of men working, living and boarding within the companies' works, who do not go outside of the grounds. The teamsters, numbering about 2000, struck about two weeks ago, but the owners of teams have succeeded in obtaining sufficient teamsters to carry on business, and the draying of the city is being fairly well done. The porters and packers of the large wholesale houses formed a union and the members were notified to strike in order to assist the teamsters, but as this work is unskilled labor those who struck were replaced within 24 hours, and there are now more packers and porters in San Francisco than there are places for them. The stevedores, longshoremen and sailors, who form what is known as the City Front Federation, all struck in order to aid the teamsters. The commerce of the port of San Francisco was seriously threatened, but through aid from the country and elsewhere ships and steamers have been enabled to load and unload, and at the present time are getting off a little beyond their scheduled time.

We are now threatened with still further strikes

among the building labor unions, and in case this is done it will stop building operations in San Francisco very materially.

It looks as if the labor unions had made a concentrated attack on San Francisco in order to establish unionism in every branch of trade. In order to offset the abuses of unionism and to protect themselves, the Employers' Association was formed in San Francisco and adopted in their constitution that they would employ any person, irrespective of whether or not the applicants belonged to a union, and that any differences between employer and employee must be settled by the employer and employee, without interference from officers or members of any labor organization.

Under the existing conditions trade has suffered considerably, and the prospect of more men going on a strike does not tend to ameliorate the condition of affairs in San Francisco. From the employers' standpoint it looks as if the men would soon go back to work, and the prosperous conditions and times in San Francisco would once more be restored to their normal condition, judging from what has been accomplished in the last three weeks.

Boston.

BIGELOW & DOWSE COMPANY.—Business continues in good volume, and shows a marked improvement over that of the same season of last year. Abundant rains, notwithstanding the extreme heat, leave the lawns and foliage bright and green. The hay crop has not been better in many years. The ice houses are empty, and the summer hotels are filled with boarders from all over the country. For the past two weeks the temperature has ranged from 70 to 80 degrees, and the prevailing winds are from the water. One need not leave Boston for comfortable days and nights, but at this season it is fairly deserted by its people and given up to strangers.

Every one is looking for the result of the order to strike in the steel mills, and as to its effect on sales and value of merchandise. There is an uncertainty at present that warrants care, and merchants are adopting a conservative policy. This is no time to speculate, but one is warranted in having a normal stock on hand and in keeping it well assorted.

Manufacturers complain of the difficulty of getting deliveries of raw material even now. Some having contracts with the United States Steel Corporation are placing additional orders with outside mills at advanced prices to secure delivery.

The natural outlook this fall seemed to warrant lower prices. Present conditions may call a temporary halt. With an early settlement of the strike it will have had but little effect on general business in New England, which has a bright outlook.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—August sales hold up well with preceding months, notwithstanding harvest is on in full blast. Yield, where the threshers have reported, is running ahead of expectations.

For years the Columbia River has been famous for its Royal Chinook salmon, both fresh and canned, a fish that is sometimes caught weighing over 80 pounds, and averages by the ton 25 to 35 pounds. For a number of years the run has been declining, and the State has been propagating. This was the year for fish to show up as a result of five years' work, and they have, snowing under cannery and cold storage, leaving the State \$2,000,000 better off for their coming.

The above fact is mentioned to show how many strings we have to our bow, and we confidently expect that the combination will be instrumental in grinding out very pleasant music for those who are fortunate enough to have their lines cast in so fortune favored a place as Oregon.

New Orleans.

A. BALDWIN & Co.—Business showed considerable improvement during July, and the month of August opens with a very large volume of business, and orders are becoming much larger and for a greater assortment of goods than we have been experiencing for some time.

The conditions are all very favorable for a magnificent fall business, and country merchants are replenishing their stocks that they have been allowing to run very low during the past three or four months.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—Trade has continued much the same as in the preceding months, though the usual lull of harvest time has been noticeable the past week. Upon the whole, the year's business has kept up well, and the volume and the conditions of trade generally are quite satisfactory. The only important exception is the difficulty of getting goods in certain lines. This difficulty, which has been a troublesome feature since the first of the year, is now greatly aggravated in some lines by the strike, and as the struggle progresses the shortage of goods will doubtless increase. Wholesale dealers have made great efforts to secure goods, and have succeeded to some extent, but only partially. During the continuance of the strike it is expected that some goods will be doled out by the mills, but the supply will be away short of the demand, and, if it is to be a protracted struggle, the situation will become one of intense strain.

It is deplorable that business and other interests are compelled to face such conditions, but it would seem that, with the issues as sharply drawn as they now are between the contending forces, it were better to settle now by legitimate means the question that lies at the bottom. To what extent shall organized labor control business? We can see but one answer to it, and not the shadow of a compromise in it, but it may take a long contest to reach the result.

Aside from this trade conditions in the Northwest are quite favorable. Crops, except perhaps corn and potatoes, are abundant and are well distributed and a steady and satisfactory trade may be expected. It is too early yet to predict the outcome of collections, but the prospects now are exceedingly good.

Omaha.

LEE-GLASS-ANDRESEN HARDWARE COMPANY.—Business throughout this section of the country still holds up to a satisfactory standard of activity, and shows a handsome gain over corresponding period of last year. Although a full average crop is not expected, what shortage there may be will be made up by present high prices, provided same are maintained.

The fall season is now close at hand, and business men are looking forward with confidence to a very active period in all departments.

The great steel strike situation is being watched with close attention. If a settlement is not reached within a reasonable time a distressing shortage of goods will undoubtedly develop, and such probably as has never been experienced before.

The country tributary may be reported as continuing in a remarkably prosperous condition, and as long as there is plenty of business in sight, backed by prosperous conditions, no fear need be entertained of any adverse changes, at least for some time to come.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—We are pleased to report that the condition of trade in this territory since our last letter has been considerably improved. We have had good rains throughout the South, and crops that were supposed to be damaged beyond repair will be injured very little.

The fall trade is now under way and is going to be exceedingly heavy. There is a large demand for Guns, Cutlery, Heating Stoves, Enameled Ware, Stove Pipe and other goods of this character. Prices on all lines are very firm, and several staple items have had an advance during the past week, among them Galvanized Ware and Enameled Ware.

Collections are also better than for some time past.

E. A. Wood has bought the Hardware and Stove business formerly conducted by John Wood in Gifford, Ill.

NOTES ON PRICES.

Wire Nails.—The trade generally are pursuing a conservative course in ordering Wire Nails. Orders are received in good volume, but for the most part are confined to small lots. Mills are shipping more promptly. Outside mills are making slight concessions in price to obtain orders. Some of the Western jobbers are not strictly maintaining differentials on less than carload lots of Nails. Quotations remain unchanged, as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots.....	\$2.30
To jobbers in less than carload lots.....	2.35
To retailers in carload lots.....	2.40
To retailers in less than carload lots.....	2.50

New York.—Distribution of Wire Nails from this point continues satisfactory. Orders are for fair quantities and are frequent. Quotations are as follows:

To retailers, carloads on dock.....	\$2.53
Small lots at store.....	2.60

Chicago, by Telegraph.—Trade is very good in Wire Nails. Makers are now delivering with fair promptness and hope to be able to care for the fall trade with better dispatch than that of last spring. Orders, while numerous, are unusually small, indicating little stocking by buyers. Jobbers report inquiry of same large proportions as for many weeks past. Carload lots are quoted at \$2.45 and small lots at \$2.55, with a concession to \$2.50 to best buyers.

Pittsburgh.—The Wire Nail trade is only fairly active, buyers continuing to pursue the policy of placing orders only for small lots. The impression continues largely in the trade that any change in the price of Wire Nails must be to lower values, and for this reason are inclined to place orders cautiously. Probably in no other branch of the steel trade has there been such an increase in capacity as in Wire Nails and allied lines. There continues to be some shading in prices by some of the outside mills that have recently started and are soliciting trade. Quotations remain unchanged, as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots.....	\$2.30
To jobbers in less than carload lots.....	2.35
To retailers in carload lots.....	2.40
To retailers in less than carload lots.....	2.50

Cut Nails.—Some manufacturers of Cut Nails request jobbers not to accept large orders for prompt delivery, as they are behind on shipments, probably because they are unable to obtain material promptly. Most of the mills have either withdrawn quotations for export or decline filling orders of this kind, as this class of business is not yielding satisfactory profits. While mill prices are firm, some of the Western jobbers are quoting special prices on mixed cars of Cut and Wire Nails, Wire and Staples. Quotations are as follows, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

Carload lots.....	\$2.00
Less than carload lots.....	\$2.05 to \$2.10

New York.—Demand for Cut Nails from territory tributary to this point continues without material change. New York quotations for carload and less than carload lots are based on the above prices, to which Pittsburgh freight is added:

Carload lots on dock.....	\$2.13
Less than carload lots on dock.....	2.18
From store.....	\$2.18 to \$2.25

Chicago, by Telegraph.—The Cut Nail trade maintains its usual proportions, with prices unchanged at \$2.35 for small lots.

Pittsburgh.—There is only a fair demand for Cut Nails. It is claimed irregularity in prices has disappeared. Buyers are placing orders only for small lots, feeling that prices will not be any higher, but may possibly be lower. Quotations are as follows, f.o.b. Pittsburgh, plus the actual freight to point of destination, terms 60 days, or 2 per cent. off in 10 days:

Carload lots.....	\$2.00
Less than carload lots.....	\$2.05 to 2.10

Barb Wire.—Each week sees manufacturers of Barb Wire in a better position to fill orders, as they are gradually catching up with requirements. Demand continues good, and inquiries point to a satisfactory fall trade. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots, Painted.....	\$2.60
To jobbers in carload lots, Galvanized.....	2.90
To jobbers in less than carload lots, Painted.....	2.65
To jobbers in less than carload lots, Galvanized....	2.95
To retailers in carload lots, Painted.....	2.70
To retailers in carload lots, Galvanized.....	3.00
To retailers in less than carload lots, Painted.....	2.80
To retailers in less than carload lots, Galvanized...	3.10

Chicago, by Telegraph.—Instead of being 60 days behind in their orders on Barb Wire, makers are only about 30 days back. Present trade is fairly good, and there is enough preliminary inquiry from the Southwest to indicate that there the ranchmen who gave up buying last spring because of impossibility of procuring satisfactory deliveries will purchase early this fall. Carload lots are quoted at \$2.75 for Painted and \$3.05 for Galvanized. Less than carloads are quoted at \$2.85 and \$3.15, respectively, with a shading of 5 cents to the best trade.

Pittsburgh.—The mills are making more prompt deliveries of Barb Wire, but demand continues large and keeps the mills filled with tonnage right along. The tone of the market is firm. For domestic trade we quote: Galvanized Barb Wire, \$2.90, in carload lots to jobbers, and Painted, \$2.60. Terms 60 days net, 2 per cent. discount for cash in 10 days, f.o.b. Pittsburgh.

Plain Wire.—Requirements for Plain Wire continue large, and mills are unable to accumulate stock. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. off for cash in 10 days:

	Base sizes.	
	Plain.	Galv.
To jobbers in carload lots.....	\$2.25	\$2.65
To jobbers in less than carload lots.....	2.30	2.70
To retailers in carload lots.....	2.35	2.75
To retailers in less than carload lots.....	2.45	2.85

The above prices are for the base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances.

6 to 9.....	Base.....	\$0.40 extra.
10.....	\$0.05 advance over base.....	.40 "
11.....	.10 " " " ".....	.40 "
12 and 12½..	.15 " " " ".....	.40 "
13.....	.25 " " " ".....	.40 "
14.....	.35 " " " ".....	.40 "
15.....	.45 " " " ".....	.75 "
16.....	.55 " " " ".....	.75 "
17.....	.70 " " " ".....	1.00 "
18.....	.85 " " " ".....	1.00 "

For even weight bundles, 50 pounds and over, 5 cents per bundle advance on above.

Chicago, by Telegraph.—There is some delay in obtaining shipments, though it is not quite so serious as in Barb Wire. Jobbers report that demand for Nos. 14, 15 and 17 Plain Wire during the past few days has exhausted stocks. These sizes are wanted as a substitute for Bale Ties, the latter having been exhausted because farmers are binding up prairie grass and all kinds of feed never baled before. Carload lots are quoted at \$2.40, base, and small lots from stock at \$2.50, with \$2.45 quoted to the best trade.

Pittsburgh.—The volume of business in Plain Wire continues heavy, and some of the mills are still unable to make prompt deliveries as wanted. The tone of the market is strong, and for domestic trade we quote:

	Plain.
To jobbers in carload lots.....	\$2.25
To jobbers in less than carload lots.....	2.30
To retailers in carload lots.....	2.35
To retailers in less than carload lots.....	2.45

Galvanized Wire up to No. 14 is 40 cents advance on Plain; Nos. 15 and 16, 75 cents advance, and Nos. 17 and 18, \$1 advance. Terms are 60 days net, with 2 per cent. off for cash in 10 days, f.o.b. Pittsburgh.

Hickory Handles.—A good deal of inconvenience is suffered by the trade on account of the diversity in list prices of Hickory Handles. While the lists issued by different manufacturers agree in many of their prices and are subject in a general way to substantially the same discounts, there are enough diversities to be perplexing to the trade. It would be for the general good if manufacturers could correct this diversity and agree upon a standard list.

Bundy Radiators.—The price on Bundy Perfect Indirect Radiation was advanced, 5th inst., 5 per cent. The Bundy School Climax Indirect Radiator, slip nipple connection, continues at the same price as quoted on the Perfect, July 15.

Glass.—Local demand for Window Glass is limited to small lots. Stocks in manufacturers' and jobbers' hands are larger than was anticipated for this season. To afford an opportunity for stocks to be considerably reduced, it is probable that the American and Independent companies will defer starting their factories, at least until October 1. When the fall demand sets in higher prices are not unlooked for. Jobbers' quotations for domestic Glass are as follows:

	Discount.
Less than car lots, from store.....	80 and 20 %
Carloads, f.o.b. factory.....	85 and 5 %

Paints and Colors.—*Leads, &c.*—Some of the larger manufacturers of Mixed Paints have announced a 10 cents per gallon advance in price, based on the high cost of Linseed Oil and of Tin. Since the advance in the price of Paints, Oil has declined 10 cents per gallon. The decline has affected the demand for White Lead in Oil unfavorably and unsettled the market. Quotations for White Lead in Oil are as follows: In lots of 500 pounds or over, 6½ cents; in lots of less than 500 pounds, 7 cents per pound.

Oils.—*Linseed Oil.*—On August 16 the price of Linseed Oil was reduced 10 cents per gallon. The new crop of Flax Seed has begun coming in from the Southwest, and, although the crop is comparatively small and of inferior quality, it caused a decline in the price of Seed. Three or four weeks will probably elapse before the size of the Western crop of Seed can be accurately estimated. The future of the Oil market depends entirely upon Seed. A further decline in Oil would not be a surprise to the trade. Quotations are as follows: City Raw, 72 cents per gallon in lots of five barrels or more; 73 cents in lots of less than five barrels. Out of town Raw, 70 to 71 cents, according to quantity. Boiled Oil, 2 cents per gallon advance on Raw.

Spirits Turpentine.—A comparatively light demand has characterized the local Turpentine market. Orders have been for small lots at lower prices than last week. Quotations, according to quantity, are as follows: Southern, 36 to 36½ cents; machine made barrels, 36½ to 37 cents per gallon.

DEATH OF W. K. ROSS.

WILLIAM KENNETH ROSS, the subject of this sketch and well known to Hardwaremen, died in Montreal, Thursday morning, August 8, of an affection of the heart from which he had been ailing for some time. He was buried from the home of his brother, Dr. George T. Ross, in that city last Saturday.

W. K. Ross was born 56 years ago in Ayrshire, Scotland, where he was educated and was the son of the late Kenneth Ross, a railroad contractor. Coming to this country with his parents, who settled in Hamilton, Ont., his first business venture was in the retail Hardware trade in that city, with which he was connected for a number of years, finally relinquishing it for the wholesale trade, being employed by the Hardware manufacturing house of Lane & Gale, Troy, N. Y. He then formed a partnership with Fuller Bros., New York, as the Ross & Fuller Association, New York and Chicago, and continued as a senior of that firm for nearly 25 years.

He represented and sold the output of some of the largest factories and business concerns of the United States for many years, among which are the following:

Henry Disston & Sons and Stanley Works, exclusively in Canada; American Axe & Tool Company, Standard Tool Company, the Malin & Co., J. M. King & Co., Hay-Budden Mfg. Company, Eagle Square Mfg. Company, New York Wire Cloth Company, Lawrence Cordage Works, Holroyd & Co., William Wilcox Mfg. Company, Owosso Mfg. Company, as well as a number of others.

After Lane & Gale gave up the business of representing manufacturers Mr. Ross took the agency of their lines of goods for representation on the road. About 12 years ago, finding the greater part of his transactions to be in the Central West, he removed his headquarters to Chicago, where he opened an office in the Pullman Building to better enable him to keep in touch with his customers. Up to within a year or so it was his custom to make regular trips as far East as Buffalo and West



W. K. ROSS.

to the Missouri River cities. He also usually made two trips a year into Canada, controlling exclusively some products in that territory.

For about a year he was unable to follow his calling with that energy and assiduity which had always characterized him owing to failing health, and he made his home during the most of that time with his brother in Montreal. His death was sudden and somewhat unexpected, although the malady with which he was afflicted for so long was recognized as incurable, and so pronounced by the leading medical talent of New York, Chicago and Montreal.

Mr. Ross was genial, companionable, open hearted and generous; one whom the trade and his friends were always glad to see. He always had a kind word for everybody and an appeal from those in distress met with a prompt response.

CONSOLIDATION OF SHOVEL INTERESTS.

THE OLIVER AMES & SONS CORPORATION, North Easton, Mass., manufacturers of Shovels, Spades and Scoops, have purchased the business of the following concerns making similar lines of goods: T. Rowland's Sons Company, Philadelphia, Pa.; the H. M. Myers Company, Beaver Falls, Pa.; Wright Shovel Company, Anderson, Ind., and St. Louis Shovel Company, St. Louis, Mo. There have been rumors of some such action in the Shovel trade for several months back, and it is even denied now in some quarters that the purchase has been consummated, but we are reliably informed that final action was taken Saturday, August 10. It is also reported that negotiations are pending with other concerns in the same lines.

LETTERS IN REGARD TO Catalogue House Competition.

I. From a Contractor.

I am neither a Hardwareman nor a farmer, and yet I come in constant touch with both of these classes and do some business with both of them (I am a contracting builder), and while I favor the home Hardware trader as far as he will let me do so with justice to myself, yet he, and he alone, is the cause of the catalogue houses being patronized more and more by the farmer and the merchant, and, I may say also, by the contractor.

The town in which I reside boasts of two pretty fair country Hardware stores, both of them claiming to be up to date in their stock, and yet there is no time from January to December that you can buy as good a tool as an 8-inch Steel Try Square with an iron stock and a miter cut on it in either of them. An Iron Reversible Match Plane, a Slide Rule, a Langdon Miter Box, or any of the latest and best tools never saw the inside of their stores. I buy tools. My men want tools. We can send to some one in Philadelphia or Chicago and get those tools not only cheaper, but quicker than either of those stores will get them for us; hence we do it and the retailer kicks.

Again, I am building for farmers. I am using Nails, Screws, Locks, Hinges, Tin, &c., every day in the year. I go to one of these stores and get prices on goods. The man that I am going to build for does the same. He builds once in his life; I build all the time. Yet he can buy a keg of Nails, a pail of Paint, a Door, a Lock, a Tin roof, and so on *ad infinitum*, as low as I can. Hence if I sell him these things I take the trouble and my retail man gets the rake off.

Again, I send to the retail store for a Barn Door Latch; it costs 20 cents. I can buy two of them for 21 cents in Philadelphia, and the freight is only 18 cents per hundredweight. I can save on Nails from 17 to 20 cents per keg by buying out of town, and on Paints, Oils and Varnishes the retailer wants the greatest part of the earth. I have paid 21 cents per gross for $\frac{3}{4}$ -inch No. 8 Screws in this town, and bought the same (brand and all) for 10 cents elsewhere.

Now I for one am willing to pay home trade a reasonable profit and spend my money here, but in competition on a job I cannot meet prices that must be met and buy at home retail stores, and so it cometh to pass that while men can be found away from home who are anxious to sell at small margins, the consumer (if he is onto his job) will pass the home store of high margins and obsolete stock and buy where he can get what he calls for, and get it at a reasonable figure. This is my experience.

II. From an Illinois Merchant.

It seems to us that the article by a Western merchant on catalogue house competition, which appeared some time since in *The Iron Age*, contains more sense and shows a clearer idea of the situation than almost all the speeches and letters on the subject that we have ever read. Well informed people know that the best catalogue houses sell the best goods that the market affords, and that they do business as nearly "on the square" with their customers as any class of business houses in this country. By their honest methods, good goods and moderate prices they retain the confidence of thousands of customers thousands of miles away, and with good advertising (principally by complete catalogues) these customers know everything the house carries in stock, what the goods are like and the price, better than they know the same points about the average home dealer's stock. They also know they can have their money back without a murmur if they want it. Does the average Hardware dealer do all these things for his customers?

The modest success the writer's firm have had in keeping this kind of competition out of their territory is based on the above thoughts, and some of their best trade getting ideas have been evolved from a study of catalogue house methods.

III. From an Ohio Hardwareman.

To the shop keeping student of to-day the assembling and display of goods in a department store should be fascinating work. To the student of shop keeping the attracting of customers, the economies and profit should have vital importance.

The department store is a reality, a fact accomplished, concrete, dynamic; neither asking help nor tolerating hindrance in method. I doubt if it would be wise to antagonize, because we should remember the retort of the intruding Irishman, assailed by cries of "Put him out! Put him out!" "It is aisy to say put him out, but show me the man that will 'put him out.'"

Of course the assembling of goods not heretofore germane to each other will be tried by the inexorable law, paramount everywhere, "survival of the fittest." And while we are waiting for the verdict, perhaps a glance at the question may be in order.

The department store is a corollary of centralization. It is neither a revolution nor a revelation in trade lore. It might seem like an attempt to hog the ring under a narrow horizon. But I think it is generally conceded that the best assortment and best prices will always make a horizon of their own, even for specialties. If the department store can gather and distribute its wares cheaper than others it will live. I see no reason why a department store should not thrive at any trade center, dependent only upon location, organization and capital.

Location is important, but always possible. Organization is harder to obtain, because it must be unified and focused in one man. Capital, under present conditions for legitimate trading of this sort, should be abundant, because the stockholder, who has a right to know the liabilities, should be able approximately to inventory the stock with his eye.

PRICE-LISTS, CIRCULARS, &c.

BRIDGEPORT CHAIN COMPANY, Bridgeport, Conn.: Circular calling attention to their Triumph Dog Lead.

LUFKIN RULE COMPANY, Saginaw, Mich., and 280 Broadway, New York: Illustrated descriptive catalogue, envelope size, of Measuring Tapes, showing also some entirely new styles since the publication of their general catalogue earlier in the year.

STARR MFG. COMPANY, Halifax, N. S.: 1901 catalogue of their Acme, Achieved and other Ice Skates. They call special attention this year to their Chebucto Hockey Skate, which was designed to meet a demand for a double ender Hockey Skate. It is made of the same high grade materials as their best Skates.

ESCORA MFG. & SUPPLY COMPANY, 147 and 149 Cedar street, New York: Pamphlet illustrating the advantages of their Push Broom with patent Scraper Hoe attachment.

FRED. J. MEYERS MFG. COMPANY, Hamilton, Ohio: A new illustrated catalogue has been issued showing various designs and styles of Nursery Fenders and Spark and Stove Guards. They are prepared to make to order any size or description of these goods.

R. H. BLOOMER MFG. COMPANY, successors to Combination Fence Works, Council Bluffs, Iowa: Catalogue devoted to Bloomer patent Staggered Stay Field Fencing, Lawn, Cemetery, Park, Garden and Poultry Fencing, Window Guards, Bank Railing, Corn Cribs, &c.

GEORGE M. EDDY & Co., 345-353 Classon avenue, Brooklyn, N. Y.: Illustrated catalogue of their complete lines of Measuring Tapes of linen, cotton and steel, for all purposes. One of the changes is the substitution of handsomely enameled steel cases with brass trimmings, folding handles and linen or cotton tapes for the various widths and lengths of Tapes heretofore contained in cases of asses' skin. For those who so desire, the cases can be enameled in colors.

The wholesale and retail Hardware, Stove and House Furnishing Goods stock of Farrar-Welshons Hardware Company, Pittsburgh, Pa., was damaged by fire a short time since.

Michigan Retail Hardware Dealers' Association

THE sixth annual convention of the Michigan Retail Hardware Dealers' Association was called to order at 10 o'clock Wednesday morning at the Hotel Cadillac, Detroit, by G. W. Hubbard, president of the association. The transaction of routine business connected with the organization was deferred until after the formal welcome of the association to the hospitality of Detroit. This was extended by the Hon. W. C. Maybury in an eloquent address, to which a felicitous response was made by the president.

The convention opens with a good delegation of members, to which accessions are constantly being made by arriving trains. The National Association of Retail Hardware Dealers is represented by Irving A. Sibley of South Bend, Ind.

The meeting promises to be a successful one, especially as the association is regarded as in excellent condition and doing its work well. Merchants who are actively identified with the movement refer with enthusiasm to what is being accomplished, as the rights of retailers are beginning to be recognized and respected. At the same time the opinion is freely expressed that the principal usefulness of the State association is to support and strengthen the National, as only by such an organization can retail interests be so represented and unified as to insure their recognition by manufacturers and jobbers.

SECRETARY COZZENS' REPORT.

The following is the report of the secretary of the association, Fred. H. Cozzens of Detroit:

For the second time in my business experience the duty of reporting the condition of our association and its progress since its last annual meeting devolves upon me. The record of the past year's development and progress cannot be measured as accurately as has heretofore been the case, because of the fact that your Executive Committee, after a careful investigation of the subject, decided to try a new plan of soliciting membership this year in preference to the one adopted the year before, which, while successful, had been very difficult to operate owing to the impossibility of getting the right sort of timber for soliciting. Last year, as you will remember, we put an organizer on the road about three months before our convention, and although there was no money in the undertaking, he put on about 140 new members during his career of employment. An effort was made to follow this plan this year, but it was found impossible to secure a competent man who would give his time to the undertaking on the somewhat uncertain terms we were prepared to offer him, therefore the committee decided to make a vigorous effort to secure new members by correspondence, and in addition to offer as a special inducement an opportunity to place some fire insurance with the Minnesota Retail Hardware Dealers' Fire Insurance Company, who for the past three years have been growing and doing excellent work among the Hardware dealers of Minnesota and other States. Under the laws of Minnesota that organization are not permitted to sell business outside of their own State, but they are allowed, however, to take any business brought them by another association.

The New Plan and Its Result.

Acting under instructions of the Executive Committee, therefore, we sent out to about 1200 Hardware dealers in Michigan an appeal to join the State Association, and at the same time offered them this insurance feature, which, based on the returns produced by that company thus far, would insure a saving of 25 to 35 per cent. of the regular board rates in the locality where the insurance was taken out. The limit which any one concern are allowed to place with the Minnesota Company is \$3000, but estimating the average policy at \$1000 and the average board rate at 1½ per cent., which your secretary believes is low when it is considered that the

majority of the business will come from small towns without adequate fire protection, it will be readily seen that considerably more than the annual membership dues will be saved in each case. From communications and registration on the first day of our convention, it is evident that this plan of getting members is going to meet with good success, and it will perhaps be as profitable as the previous plan, or, in fact, any other plan we could adopt.

Recapitulation.

At the close of our last convention we had a membership of 300. Since that time we have received by mail six. Of this number 179 have paid their dues up to July 1, leaving 64 in arrears for 1901, 16 in arrears for 1900 and 1901, and 47 who have absolutely withdrawn since our last meeting, which will leave our total membership, counting in all who have not absolutely withdrawn, 259.

The secretary's financial statement to date is as follows:

Balance on hand at last report.....	\$9.41
Received from memberships.....	107.00
Received from dues.....	880.50
Received from dues to the Interstate.....	242.00
Total.....	\$1,238.91

Disbursements.

Traveling expenses last year's convention, E. H. Loyhed and I. A. Sibley.....	\$72.91
Organizer Tyler.....	5.00
Agents' commission.....	8.00
Stenographer and telephone at last convention..	22.40
Postage to August 1, 1901.....	51.70
Job printing.....	25.00
Subscription to <i>Trade</i>	3.00
Exchange on checks and collection on drafts....	29.91
Office expenses (per cash book).....	9.36
Interstate Association.....	7.00
Remitted to treasurer.....	995.62
—————	\$1,229.90

Balance on hand..... \$9.01
To which may be added the sum of \$223.29 in the treasurer's hands, leaving a total balance of \$232.30 on hand.

As our unpaid liabilities to date are only \$20.87, it will be seen that our net balance will exceed \$200 in addition to the convention collections.

Having disposed of these bare facts, the opportunity is now open for a presentation of association work and its influence upon the retailer as viewed from the broad standpoint of general results. The last year has been a prolific one in the growth and development of associations of retail merchants.

The National Association.

In March the officers of the then Interstate Association of Retail Hardware Dealers met in Chicago and formed the National Association, of which Michigan is a branch. At that meeting there were present representatives from Michigan, Indiana, Iowa, Illinois, Missouri, Wisconsin, North Dakota and Ohio. Ohio and Wisconsin are not yet members of the National, but it is believed that the delegates who represented those States at the March meeting will report favorably on the question and that affiliation will follow next year. Kentucky and Arkansas have since joined.

A number of very important matters were discussed at this meeting and some decisive steps were taken. One of the most important steps taken was a decision to send out a quarterly bulletin to all State members affiliated with the National Association. Two numbers of this quarterly have already been placed in your hands and you are in a position to judge as to the nature of the matter presented. Its value rises from the fact that it gives the National officers a direct private and inexpensive method of communicating with all members at stated intervals.

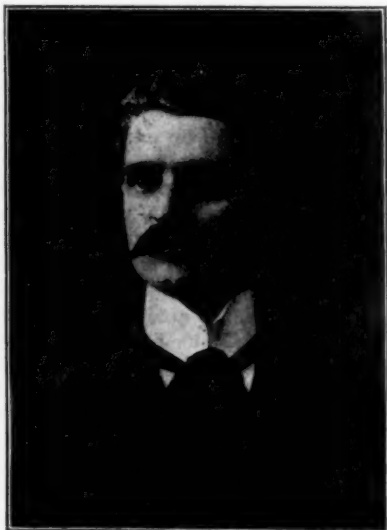
Your secretary, who, until April of this year, was secretary of the National Association, being unable to give the necessary time to the work, insisted upon being relieved, and M. L. Corey, secretary of the Indiana

Association, was elected in his place. Mr. Corey is a practical, hard working, conscientious secretary, and if the work of the National is properly supported by the different States he will, I am sure, be able to show splendid results at the time of the next meeting.

The president elect of the National Association, W. P. Lewis of New Albany, Ind., is really a brilliant man and a gentleman of progressive and advanced ideas. The other officers of the National, including the first vice-president, Geo. W. Hubbard, our president, are men of unusual ability, so that we feel that the work of the National Association is in excellent hands.

The Need of Funds.

The great trouble about the National work is the same difficulty which is confronted by other retail organizations from the first and it is a question of funds. It is impossible to transact any business to-day without paying for it, and National Hardware Association work is no exception to the rule. The difficulty of raising funds, however, consists in the fact that the assessments in each case, though small, are distributed over a wide territory, which in some instances makes the cost of collection exceed the amount collected. There are plenty of Hardware dealers in the United States who would gladly give \$5 or even \$10 a year to keep up the work, but it is not right nor just that a few men should carry



FRED. H. COZZENS.

a burden that belongs to all, consequently the annual membership dues in the National were fixed at \$1 each, and yet in spite of the fact that the cost is absolutely nominal, and is infinitesimal as compared with the benefits possible to be derived from it, the National Association is to-day suffering from inadequate funds. A suggestion has been made, and seriously considered in some quarters, of asking the manufacturers for financial assistance in establishing this work, but it is your secretary's opinion that this is not a wise course, although, as a matter of fact, there is no reason why the manufacturers should not be glad to contribute to keep such an organization alive, for it means the production of better merchants and the constant increase in the sale of a better quality of goods. We believe, however, that the National Association of Retail Hardware Dealers should finance itself; in other words, that it should take care of its own expenses and be absolutely independent of any outside influence, and if the organization is to be maintained on a plan of dignity commensurate with its importance this course must be followed. The method, however, was left to the officers of the Executive Committee of the National, and when the National again meets next January the delegates from Michigan should go there prepared to express themselves on this question, so that it may be settled for all time.

What Association Work Has Accomplished.

Occasionally you will meet a dealer who, when approached for membership in the State Association of Hardware Dealers, will ask, "What has been accomplished?" and the question is all right in its way, although we should think that the well read merchant would have no trouble in ascertaining these facts for himself. The mere fact that a national organization of retail Hardware dealers exists is of itself a potent influence in controlling many trade evils. One of the most important accomplishments that a dealer is able to put his hand on is the withdrawal of the Kelly Axes from the list of catalogue houses. After our last meeting the Kelly Bros. met with our Executive Committee and started in to argue that it was impossible to do this thing. Before they got through, however, they were convinced that unless they did do it they were going to lose a large amount of trade which they were then enjoying in Michigan, and, while they made no promises that night, they certainly received suggestions which unquestionably caused a deal of hard thinking on their part. They went from Michigan to Indiana, and met with exactly the same reception there, and the result was that shortly after the formation of the National Association the Kelly people decided to withdraw their goods entirely from the catalogue houses, and it gives me great pleasure to report that in the last catalogue of a prominent Chicago house, where previously these goods have been conspicuously in evidence, there are no longer any Kelly Axes listed. In this connection it gives me pleasure to read a little note received from the Kelly concern which speaks for itself:

ALEXANDRIA, IND., July 31, 1901.

FRED. H. COZZENS,

Secretary Michigan Retail Hardware Dealers' Association, Detroit, Mich.:

Dear Sir.—About two years ago we were invited to attend the meetings of various retail Hardware dealers to discuss the question of our goods being quoted in department store catalogues. Up to this time we had not realized the importance of this subject, but after attending these conventions and hearing the views of the delegates ably expressed, we saw at once that it was not fair to the retail trade to have this sort of competition, and we thereupon notified the trade in a general circular that after we had concluded existing contracts we would withdraw the Kelly Axes from the catalogues.

In return for this the various associations pledged us their support in the sale of these goods. We take pleasure in stating that we have carried out our agreement and all Kelly Axes have been withdrawn from the catalogues. We take pleasure in further stating that this would not have been done except for the influence of the association. We are satisfied that this association has exercised a great influence for the betterment of retail Hardware dealers, and think our own case is a striking object lesson in this regard. Yours truly,

KELLY AXE COMPANY,

By J. P. KELLY, Vice-President.

This course has been followed by a number of manufacturers, and in other cases the retail selling price of goods has been advanced in the catalogues solely through the influence of the national organization. I am of the opinion that catalogue house competition is overestimated in many cases. I think that one of the troubles with some dealers is that they do not buy their goods as close as they should.

Overcoming Catalogue House Competition.

I think, as a matter of plain fact, one of the worst points that a retail Hardware dealer has to contend with in considering catalogue house competition is the fact that the public in general do not fully realize that they can buy as cheap of the local dealer as they can of any catalogue house in existence. I have here, ready for distribution, a number of circulars, which are reproductions of one circulated by Bailey & Wilber of Vermillion, Ohio. These circulars produced remarkably satisfactory results in Ohio, and in at least one case in Michigan, that of C. E. Pipp, a member of our Executive Committee, the same plan was followed with satisfactory results. This is a sort of advertising that counts, and when once your local people are convinced that they

can deal with you on substantially the same terms as they can with an outside concern, you are going to get the business.

I fear it is also true that a great many retail Hardware dealers get a bad case of fright when they see a customer approaching with a catalogue under his arm.

Those who think it costs the catalogue houses little or nothing to do business are greatly mistaken, and I think it will also be found to be true that in many cases they get a good long profit on their goods. The modern department store and catalogue house institutions are thoroughly up to date in their methods, and consequently their competition on this account is not to be sneezed at, and yet I am sure, with a little more attention to buying, the average retailer can meet all catalogue houses' corners in the Hardware line with credit to himself and satisfaction to his customer.

In Conclusion,

I hope and believe that the work of the Michigan Association is going to grow from year to year in a steady and satisfactory manner. I believe that the results which grow out of these meetings are invaluable both from a social and a business standpoint as well. I hope and trust that interest in the National Association work will not wane, for I believe that out of it will flow the most important permanent results that are possible to be obtained from associated effort. It must be remembered that in endeavoring to remedy some of the glaring trade evils now existing the retail Hardware dealers have undertaken a herculean task. These abuses have grown up gradually through a series of years and cannot be obliterated in a day. Here in Michigan the jobbers respect and heed the wishes of the Michigan Association, and we do not need national influence to help us, but when it comes to matters affecting Chicago, Indianapolis, Cleveland, Buffalo or St. Louis jobbers, Michigan has little influence by herself. Coupled with other States in the National, she will soon be able to make our influence felt as vigorously in those States as she has been able to do in Michigan alone. Interdependent upon each other, therefore, the Michigan and other State associations should work hand in hand for the furtherance of better trade conditions, better prices for staple goods and better profits all round.

Your secretary desires to express his thorough appreciation of the many warm personal friendships he has formed during his incumbency of office, and he trusts that the relations thus established may continue indefinitely. All of which is respectfully submitted.

CREDITS AND COLLECTIONS.

The following is the paper on "Credits and Collections" prepared by R. J. Cleland of the Commercial Credit Company, Detroit and Grand Rapids:

The science of giving credit and the art of making collections, while diametrically opposed to each other in principle, are by their very natures so closely allied that the analysis of one subject necessarily implies the consideration of the other.

Without a clear and accurate knowledge of the nature of credit its office cannot be thoroughly understood. I shall therefore refer briefly to credit, but in only so far as to apply its functions in influencing and facilitating the collections of accounts.

The Hon. Edward Everett, in an address delivered before the Mercantile Library Association at Boston, with reference to credit, said: "I should deem the formation of sound and sober views on the subject of credit one of the most desirable portions of a young merchant's education." To the up to date, practical merchant the advice will appeal with great force. Unfortunately for merchants, and particularly for those who are untried, and who are just entering on their life's work, there is to-day little or no literature pertaining to this subject.

Passing Upon Credit a Science.

In opening I call the act of passing upon credits a science. In doing so I do not speak hastily, nor without consideration. The act of passing upon credits is to-day

as much entitled to be called a science as is the study and classification of flowers and plants and trees, or any one of the many sciences. It is true that its principles are not as well understood, nor have they been as clearly defined, but they exist, and the great need now is for some practical credit man to systematize, classify and define these principles.

Few of the older of those here to-day who have for years been passing upon credits could give us a set of rules that would serve as a guide to the extension of credits, yet from day to day they apply these principles with as much skill as an old mariner handles his ship over an oft traveled, well-known course. The principles are there, but they are yet undefined.

This subject of credits is not new—it received much attention from the old Greek philosophers, the Romans and other older economists, and they seemed to appreciate that credit had a purchasing power. The old masters, such as Demosthenes and Aristotle, were chiefly occupied in ascertaining whether credit was wealth. For the purposes of this discussion we do not need to spend any time on that feature.

With us the word credit is nearly synonymous with debt. There can be no credit without a corresponding debt.

Mercantile Credit

may be defined to be that certain confidence reposed in men because of their character and resources. In other words, financial ability, coupled with inclination to fulfil business obligations. In this connection the word "character" would include the cardinal virtues, honesty, stability, intelligence and industry, while resources would probably mean actual worth, influenced in only the slightest degree by expectancy.

It is not my purpose to deal with the theories of credits and collections, but to call your attention to some of the every day occurrences in your business, and, if possible, suggest remedies for some of your troubles.

You are frequently called upon to extend credit to men who have no tangible property except the clothing they wear, possibly a small amount of household furniture, and who have the added duty of maintaining a large family. You are to-day, in cities and country towns, called upon to extend credit to just such customers.

This is perhaps more generally applicable to farming communities. In cities credit customers coming under this class would have the slightly improved aspect of the head of the house being steadily employed, and this is especially true in manufacturing cities. They are paid regularly, and are accustomed to being required to meet their bills with some regularity.

Dangerous Risks.

It is reasoned by many that such customers are entitled to credit. I agree with you that many of them are honest and perhaps they may pay you satisfactorily in most cases, but at best they must be classed as dangerous risks. In the extension of credit to such customers I insist that it should only be done with a full understanding of their circumstances. You should know where the prospective customer is employed; if he is steadily employed; the amount of his weekly or monthly earnings, and how and when he receives his pay. If you decide to extend credit to him you should then limit his credit, which limit should never exceed his weekly or monthly earnings, depending on the manner in which he is paid, and in a great majority of the cases should be very much less.

You should remember that in addition to your line of goods he has his family to feed and clothe; in most cases rent to pay, and his wants in your line should always be considered in connection with what he will probably be required to purchase from merchants in other lines of trade.

Never be guilty of sizing a man up and selling him a bill of goods without even knowing his first name, relying upon a supposed trifling acquaintance and your ability to read human nature. Men's eyes and faces are made to conceal their thoughts and character.

Did you ever extend credit to a slight acquaintance, one whom you had seen about, who always dressed well, whose home from outward appearances and general report was comfortable, but concerning whose habits of paying and general financial worth you knew nothing? Haven't all of you accounts on your books now of that nature that you would be glad to get 10 cents on the dollar for?

Know Your Customer Thoroughly.

It probably did not occur to you then how easy a matter it is, and yet how all important it is, to have a thorough knowledge of your customer, his habits of pay, and his ability, before your goods go into his possession.

I was born a merchant, and in a country town where the most aggravating credits are asked. My father was a country merchant, and for the past ten years I have been closely in touch with retail city merchants. You can readily understand, therefore, that this subject appeals to me with great force.

When you are asked for credit by a person concerning whose responsibility you have no actual knowledge, do not hesitate to take time to investigate. He is asking you for the loan of your hard earned dollars. Find out by what right he asks this credit. Where it is he works. What are his earnings? When is he paid? How much of a family he has and what sort of a home he maintains. Has he any personal loans or contracts?—you know we have salary loan agencies and mortgage loan agencies which make loans on salaries or household furniture, and there is no record of it open to the public.

Again there are firms selling every conceivable article on contract. Find out whether he is tied up with any of these concerns. Your investigations should be exhaustive. When you have satisfied yourself, if you determine to extend credit, put a limit on the amount and indorse that limit on the customer's ledger page and never permit his account to exceed that limit. It is an easy matter to have a definite and clear understanding with a prospective credit customer at the time he is asking for credit.

Some of you do not exactly agree with me on this point and you cite the instance of a man whose trade is large, and say that you have been trying to get it for some time, and if you were to ask him such questions you would offend him, and he would not give you his trade. On this we do not agree. It is but an imaginary modesty on your part, at any rate many progressive firms under such circumstances take time by the forelock and make the investigation before they go after the customer. If found desirable they go after his trade; if the investigation proves him to be questionable, the other fellow has the undisputed privilege of lending his money.

When Accounts Are of Any Considerable Size

frequent investigations should be made to insure against loss through customers who were satisfactory and, perhaps, responsible, but who have gone wrong through any one of the many reasons with which you are familiar.

When you as merchants ask for credit you are required to show a basis upon which you expect it. You are accustomed to do this; it is taken as a matter of course; then why do you extend credit to the laborer, mechanic or clerk known to be irresponsible, or to the farmer on a rented farm with a mortgage upon every cow and plow? Do not be afraid to ask security. If there is to be a mortgage, how much better it is for it to run to you to secure you for the credit given. You can have a much more satisfactory arrangement before the debt is incurred than afterward. The man who weeps when he asks for credit will probably do likewise when you ask him for your pay.

City merchants frequently find money more plentiful in manufacturing centers and collections correspondingly easier. You will, however, find that laborers and artisans in the various arts and trades are of an exceedingly transient nature. They will frequently move in an evening, change their names, and in large cities they are

lost. You cannot know your customer too well; great care should be exercised in extending credit. Such cases as the one cited suggest that you should not only know his present circumstances, but also something of his antecedents.

Put a Limit on Your Credit Business.

In a general way you should also put a limit on the total amount of credits you will extend. You know your total capital and you should not cripple yourself. You owe it to your family and to your creditors, if you have any, to be conservative in this respect. You should not overlook the fact that the amount of credit business done by a merchant, and the care with which he scrutinizes his credit customers and the vigor with which he makes his collections is an important item in the rating of mercantile agencies to-day.

Again, there are times and seasons, years and periods, when more credit can be extended than at other times.

The history of the periods of great financial depression which we ordinarily call panics will suggest to the vigilant and cautious business man that he should ever be alert to the sudden changes of popular sentiment after a protracted period of universal prosperity and liberal extension of credit. The period immediately preceding such panics was a speculative period; labor well employed, stocks and commodities, and especially the products of iron, continually advancing; immigration heavy; banks show large amounts of loans and discounts with decreasing deposits. The top is reached; the whole financial and commercial superstructure becomes unwieldy; labor in its thrift becomes restless and strikes ensue; luxury and expenditure flourish; the pressure is enormous, and everything moves at a rapid clip. At such an outlook it is a good time to reduce your own indebtedness, collect your accounts receivable and extend credit within stingy limits.

Bookkeeping.

Many of you have not come to fully realize the importance to be attached to the proper keeping of your books of account. Upon their correctness in many instances depends the chance of making collections. Some simple system should be adopted by each of you that will enable you at all times to be complete masters of your business.

The National Credit Men's Convention, at a meeting recently held in Cleveland, Ohio, devoted considerable time to this subject, and a committee was appointed to devise or suggest a system or systems of accounting for retail merchants. It is not likely that any system will be formulated that will at once meet the requirements of all lines of retail trade.

The retail merchant of to-day is versatile, he would soon find ways to simplify and improve any scheme that might be proposed, that it might better meet the requirements of his particular line of business.

Bookkeeping is but the keeping of a record of your daily merchandise transactions. These transactions should be so clearly and fully set forth that any person with the usual knowledge of such affairs commonly possessed by business men could by examination tell, at the end of any week, month, or any given period, just what amount of business was transacted by you during that period. He should also be able to tell every item of goods sold by you on credit and should also know every item, also the day and date sold to any credit customer.

Your Books Should Show

more than your daily charges; they should show cash sales, credit sales, cash payments on account, merchandise purchases, and in fact every detail and transaction should stand forth by itself. Remember it is your original entries on your day book or slips that form evidence in court, not your ledger. This will suggest to you that the making of entries on any system where slips are used is a most unsatisfactory method when disputes arise.

In the accounts of city merchants it is not uncommon to be asked to collect an account against a person whose given name is not known or the merchant having simply "21 High street," or "Mr. Smith, 21 High street." It

may be that Mr. Smith had lived at the address given, but had moved away six months or more previous to this time, and that none of his neighbors were well acquainted with him, or perhaps the neighbors have recently moved to their addresses and they do not know his address. There are in many instances people of the same name, and it is practically impossible to trace a debtor under those circumstances. Many accounts are forever lost because of the carelessness on the part of the merchant.

It is an easy matter to obtain the name of a party when he is asking for credit. If the name is peculiar, do not hesitate to ask him to write it out in full together with his given name. It may save you work later.

Many merchants will make a charge like this:

"To mdse. \$0.50"

The item is small, but may be made up of several small articles, therefore to save time he bunches them, not thinking of the future. Perhaps before the account is collected the merchant dies, or the debtor and he become unfriendly, and a suit is brought to recover upon this account. The debtor demands the items of the account, as he has a right to do. When the account is brought in as itemized it contains many items, "To Mdse." Such entries have no particular meaning and may mean almost anything. Our courts scrutinize such entries very closely. They make an endless amount of trouble, all of which could be very easily avoided.

A Broken Chain.

Again, in cities, many orders come in by telephone; others by the wife, daughter or cook. It is an easy matter to let the entries show who places the order, and also have some mark to distinguish when the order comes in by phone. Suppose one of you merchants were to be called upon to prove an account where nearly all of the goods were delivered by the delivery boy; probably most of them ordered by the wife, daughter or cook. The debtor says he did not receive the goods; the delivery boy is gone, and all the merchant can swear to is that certain goods were put up in the store and entries therefor made by him, and that he directed his delivery boy to make the delivery. You will readily see from this illustration that there is a broken chain. It is for this reason that coal companies and other similar institutions require a receipt for the delivery of their merchandise. Some such plan should be devised by city merchants for their transactions in similar cases.

Extending Credit to Married Women.

You frequently extend credit to a family, the husband being worth nothing, and the wife owning property. The law with relation to married women is such that you cannot hold the wife for the necessities of the family, even though she orders the goods and says she will pay for them, unless there is a special and distinct agreement with her that she is binding her separate property and estate, and that you would not extend credit to the husband. The law recognizes the husband as being alone responsible for the necessities of the family, and the wife is held to be his agent when she buys goods, unless, as I have said, there be a distinct and separate agreement that she is binding her separate estate and property and that the credit is extended to her and not the husband, and that she will pay the account.

I recommend that such an agreement should always be reduced to writing and signed by the wife. The husband will always pay as well if the goods are charged to the wife, and if he dies or refuses, she can legally be held for the account.

Credit Through Third Party.

You are frequently asked to extend credit to a person, a third party saying to you that if the person getting the goods does not pay he will do so, and that he will be responsible to you for the account, or that he will guarantee the account. Such expressions mean nothing in a legal sense. If you extend credit under such circumstances you do it because of the responsibility of the person who wishes to guarantee the account, and you should say to this person that you will charge the goods

to his account, or, what is better yet, have him write an order directing you to sell a certain amount of goods to the prospective customer and charge the amount to the account of the guarantor. When you write upon your books the name of an individual whose reputation for paying his bills is such that you would not extend credit to him, and underneath it write "Account guaranteed by John Doe," you are simply extending credit to this worthless debtor. Under such circumstances you are bound by the entries on your books. Our statute of frauds provides that a person is not liable on a verbal promise to pay the debt of another. There are numerous instances of this nature requiring not only care, but a knowledge of your legal rights as well.

Articles on Approval or Trial.

You are frequently asked to let some articles go out for approval or on trial and are asked not to charge them. Sometimes two or three changes take place before the transaction is closed. Do not use the spindle for such transactions. If the goods are kept, the slip on the spindle may become lost. Enter the transaction on your books, and do so just as many times as the taking and returning occurs, then have it posted in your ledger. When called on to analyze such a transaction you do not have to rely on your memory. It is before you in black and white.

Accuracy of the Merchant's Books.

Large financial and mercantile houses to-day spend much time in order that they may have a complete and accurate set of books, and I say to you that it is more important to you, according to the volume of your business, that your books should be accurate and correct in every detail. Always give receipts and enter the money to the credit of your customer before the money goes into the cash drawer. The omission to credit a customer, no matter if corrected, is a reflection; it is never forgotten by the customer, who usually spreads the scandal and always reflects discredit on the merchant's books. These are but a few of the many important matters which are lightly considered by the merchant.

When your accounts are made and properly entered, then comes the question of realizing from them the money they represent.

Every Merchant Should Be a Good Collector.

Collectors, like poets, are born. It is said poets are born poets. I say to you that collectors are not born collectors. They are born with unfailing energy, much of what is called tact, and an abnormal amount of perseverance. These attributes, together with the experience one gains in business, will make a good collector of any man. Without them I venture to assert that no man will succeed as a collector.

Be vigilant in the care of your accounts—that is, watch your books. Know the age of your accounts; know their dates of maturity; be vigorous in making your collections. By being punctual in getting your money when due you will impress upon your credit customers the importance of considering well the time of payment when they are incurring indebtedness, and they will soon come to respect your methods and your collections will be correspondingly easier. You all remember the proverb: it is found in Proverbs 22-29: "Seest thou the man diligent in his business? He shall stand before kings."

Prompt Settlements.

I believe we shall not disagree when I state that the merchant who insists upon prompt and frequent settlement of accounts is more respected, and loses little if any trade by such methods. Accounts do not become worthless during the time the debtor is trading with you. They become worthless and uncollectible because the debtor gets behind; because of your laxity in not insisting upon payment when you should do so. Once behind, his income is not large enough to meet his family expenses and liquidate your claim at the same time. Then he tells you that his family must be taken care of if you never get your pay.

In Eastern countries vigorous methods are still in

force against bankrupts, or what we would call delinquents. Even imprisonment for debt is not a rare occurrence. This is also true of Germany and France, and under certain conditions in England. The owing of a simple debt is not punishable by imprisonment in the United States. This explains what some of you have observed—namely, that when foreigners of certain nationalities first come to this country they pay as agreed, but unfortunately some of them learn too soon the difference between the laws of the country they left and those of our glorious free country.

Formerly the Laws

were much in favor of the creditors; now it is very much the other way, and the debtor has much protection to which some of us think he is not entitled. However, the change from the laws by which there was imprisonment for debt was a commendable one, and was undoubtedly the result of the experience of great commercial countries.

It does not seem reasonable to shut a man up because he owes you, when, if he were at liberty he might find remunerative work and pay you, or by working might subject himself to the process of the law so that you could force him to pay if he were unwilling, assuming, of course, that laws are provided for reaching unwilling debtors.

However, there is some merit to laws such as they have in England to-day. The moral effect is to teach people to live within their means, and this explains the fact that there is but very little actual use made of such stringent laws in England. It also explains how debts may be recovered at such trifling expense in those countries. When I say to you that the usual rate for making collections in England does not exceed 5 per cent., and that a professional collector is unknown, you will appreciate that such laws are not wholly to be condemned.

Then, again, the enormous amount that is annually lost to the business world through the bankrupt, the dead beat and the persons who, perhaps not willfully, but through misfortune or otherwise live beyond their means. This magnificent amount must be paid by those more frugal and substantial.

They pay it in the added price which the merchant must necessarily charge. For this reason I say to you that the laws we have are yet far from being equitable as between the consuming classes, to say nothing of the equities between the sellers of merchandise and those who consume but do not pay.

The Laws of Our State

recognize and encourage vigilance in the making of collections. The decisions of our Supreme Court uniformly hold to the principle "first come first served," and they recognize the preferences. The United States Bankruptcy law, however, is different. It aims to prevent preference, and under it no creditor should be preferred. Payments made within four months immediately preceding the date of the filing of a petition in bankruptcy are held to be preferences, and must be paid back into the debtor's estate if the creditor wishes to share in the general distribution of the debtor's estate.

If a laborer has been particularly unfortunate he is entitled to the privileges of this law, as well as the merchant, and if he is unable to pay the expenses of court fee of bankrupt proceedings, he may have the benefit of the law without expense by making affidavit of this fact.

You are all in business to make money, and not for the accommodation of the public. You would resent the accusation that you did business for your health. The successful business man looks after his collections; he does not want the customer who does not pay promptly; but reasons that his goods will keep until he can exchange them for something besides an uncertain account. He makes his own terms of payment, and then insists upon payment when the account is due.

Let Us Consider the Facts

as they are; the farmer or laborer or clerk or prospective credit customer from some of the trades or professions comes and says: "George, I want a few goods for a few

days." Note the expression. You all agree with me that it is about the language they would use. They want a week or about 30 or 60 days. How easy it would be at that time to say: "All right, where are you at work now? What wages do you earn? When do you receive your pay? Have you any loan from salary loan agency? Is there a mortgage on your household goods? How much do you owe other merchants?"

"If a farmer, where are you living? Do you rent the farm? Do you own your own team and implements? How much stock have you? Is any of your property incumbered by mortgage or contract? What crops are you raising? How much credit do you want, and how much time do you want?" Then if you decide to grant the credit fix upon the time and amount. The time having expired, suppose he has not paid. His crops may or may not be harvested, and perhaps some of them are sold. My advice is to go after your money. His excuse for not paying you is that he had to pay a reaper note or a doctor bill or some interest or life insurance, or one of the many similar excuses. Make it your business to get your money. Fix a time for him to pay. Keep everlastingly after him. If he is responsible get his note and bank it. Sometimes they will pay then.

Suppose he is not collectible, but has some personal property around him which is not exempt. This is where some tact is required. Size up your man; if you find there are no judgments against him you can almost feel sure that he has a certain amount of pride, and will not permit a judgment to stand against him if he can possibly prevent it. Sometimes you will find a chance to garnishee. Do not be afraid to use the garnishment process. Your attorney may tell you that he does not earn more than his exemptions; do not stop for that unless he is a hardened dead beat or the party who owes him is decidedly favorable to the debtor. In my business experience I have made frequent use of the garnishment process on debtors who did not earn the amount of their exemptions.

The average debtor fears a lawsuit and especially the effects of a garnishment. In seven cases out of ten an arrangement can be made for settlement.

If upon service of the process the debtor comes to you, you must exercise good judgment in making a settlement. If a man is only earning about \$6 or \$7 per week and has a large family to support, you must not insist upon his paying more than he can pay; if you do, the debtor may decide not to settle at all. Agree upon some amount, no matter how small, and then insist upon its being paid regularly.

Sometimes You Will Get a Judgment

against a man who does not pay. You take out an execution; the officer can find nothing. Do not trust to the officer. I have never yet known an officer who would make a proper search for property upon execution. **Do this yourself; look for a piano, an organ, or some other musical instrument—a horse sometimes.** If you cannot find anything not exempt prepare to take hold of the household furniture or other exempt property. If this is to be done it is an extreme measure and you must always be prepared to let go. However, you will find that a bold stroke of this kind will succeed many times, because the debtor will wish to avoid publicity.

Sometimes you will call upon a debtor and he will say "Yes, I will pay soon," or "within a few days." Your question to him should be, "When?" Fix a time and be sure to be there at the appointed time. Do not give him a chance to say, "Yes, I promised to have it yesterday, but you did not come for it and so I used it for another purpose."

There are, of course, times when such vigorous methods should not be used. Sometimes humanity demands that you be considerate. At other times your judgment will tell you not to be too ambitious. You all have an opportunity to do a worthy act of charity occasionally, and I predict that you do not falter in your performance of that duty. These few instances will serve to illustrate the line of thought I wish to urge upon you. Do not let your accounts get old.

The firm who collect promptly are the most re-

spected, and they lose little or no trade that is worth having. As between the easy pay-when-you-like method and that of the firm who insist upon prompt payments and the fulfillment of all engagements, it is not difficult to see and enumerate many advantages that the latter have over the former. To look sharp after your collections is one of the most essential things in business, and your success depends on it more than on any other one factor.

The Value of Organization.

We are living in a period of organization. The time is past when business men feel that their competitors are their enemies. Business men to-day organize for mutual protection and benefit. I strongly recommend organization. Every town and city should have a local branch of the Business Mens' Association. You could be of incalculable assistance to each other by uniting in local work. Let me illustrate one way in which you could do this.

Some of you are perhaps from towns of 800 or 1500 inhabitants; one bank, possibly 12 or 15 stores, maybe more. You have many slow pay and poor pay people, and some dead beats, each of you know many of them, none of you know all of them. One will know some that the other does not know. Give each other the benefit of your experience. Some of you will insist that this cannot be done satisfactorily because all will not give information. You are wrong in this. It is just a matter of finding some person to whom the information can be given, and who will be absolutely neutral, in whom you can have confidence. You must not expect this to be done without the expenditure of some effort. It will even cost you in a financial way, but it is worth much money to you, and the cost will be trifling. I would suggest a plan, the essentials of which I will outline.

The Plan.

In each of the towns where you are transacting business there is undoubtedly a banker, who is not overworked, and who would undoubtedly be willing to act as secretary and compile the information you give him for the benefit that would accrue to himself. Let it be understood that he is not to give to any members the source of his information. This information can be compiled in the form of an indexed book, and the names of the different people can be entered therein with the remarks indicating their paying qualities following after their names. The party who is acting as your secretary can assign to each of your members a number instead of writing the name of the member who makes the report, and can indorse the number, which is known only to himself. As an illustration, say that a grocer by the name of John Jones has a bill a year old against Henry Smith. He reports this to the secretary. Suppose Jones' number is 160. You would indorse after the name of Henry Smith "No. 160, bill \$20, one year old." If a record of this kind is kept, each member contributing his share of the information, you will soon have in your association a supply of information of incalculable value to the members, and if local associations would each take hold of this matter they could inform each other of the movements of people from one neighborhood or city to the other. You can scarcely comprehend the effect such an arrangement would have upon the trading public. It will materially improve your current collections, and will make the collections of old accounts much easier. I have suggested that this system be kept in a book, but a card index system is much better, if properly arranged, though it would probably require some extra work at first.

STORE AND WINDOW DRESSING AND THE BEST METHODS OF KEEPING STOCK IN ORDER.

The following is the paper on the above subject by Henry C. Weber of Detroit, treasurer of the association:

The successful merchant must have good wares and he must let the people know that he has them. In these times the newspaper has become a powerful factor as a means of advertising, and yet while it aids it cannot replace the advertisement which comes from the proper display of goods in a show window. The sphere of each

is different. Let the newspaper bring the people to your show windows, and let the show windows bring them as customers into your store. Many a prospective customer attracted by a clever newspaper advertisement has been repelled from the store of a merchant by a poor display of goods in his window. He has gone his way and said: "One cannot trust these newspapers any more," and here I may say that the many fake promises which some unscrupulous dealers have made in the advertising columns increase the importance of the show windows and the necessity of showing in them the best you have, in the best way you can. It costs so little to be nice and it goes so very, very far. In my discussion on this subject I cannot elaborate upon the views so well expressed by many who are better versed, more practical, and who take delight in performing the artistic work themselves. Every mercantile business has

Three Drawing Cards.

which, when held and played together, seldom fail of their expected successful results: The newspaper that brings the people to your windows; the window show



HENRY C. WEBER.

that brings the people to your store, and the merchant's affability and welcome, which keep them there and make customers of them. The window is invariably considered by the public to be the partial index of the store contents, and the better the display and the more elaborate this index the surer the results of its mission. Good attractions draw better than poor ones. Who would not rather listen to a brilliant orator than to a poor one? Who would not rather see a magnificent work of art than a daub, or listen to a grand opera singer than to a cheap concert hall howler? Your window should have the same consideration that you give to the employment of your help; it is your first silent salesman, and can give no offense, except through your own fault.

Window Display.

Now, what I have said of show windows may also be said of the display of stock within the store. For goods well shown are half sold. What are the methods of successful display? A display must be seasonable and suited to the time and occasion. It would be entirely out of place to show Fishing Tackle in winter, or a Thanksgiving dinner during the Christmas holidays. Now, for a practical fall illustration, Heating and Cooking Stoves, with necessary Cooking Appurtenances belonging thereto, or a washday window, showing, if possible, a live figure or a dummy with a Washtub, Wash

Benches, Wash Board, Wringer, Clothes Lines and Clothes Pins, contrasted by another scene of the modern and easy way of washing by machine, and a hundred other original and adaptable displays will suggest themselves. There must also be variety. The most attractive and appropriate exhibition will soon become tiresome to the eye. A window display should seldom be allowed to become older than a week. In many cases a day is long enough. Frequent changes excite the curiosity of a constant passer by, who will soon be on the alert to see what comes next. Thus your display is likely to become a topic of conversation, and this is the best sort of advertisement for any business.

Unity in Display.

Above all things, there must be unity in your display. There must be one predominant idea around which the others are grouped, so as to make one harmonious whole.

Promiscuous variety scatters the attention of the onlooker and leaves no impression of what he has seen. It is a mistake to make your window a sort of general sample case of everything that is sold in your store. Exhibits should be particularized. Scenes from every day life at home, in the workshop, in the field, showing the use of the articles which you sell, are striking and very effective. No display should be placed in the window without having given thought and reflection to it, as does the painter, who first paints the picture in his mind, and then transfers it to the canvas.

Firm Name in Displays.

Do not forget to impress your business name upon your displays. By that I do not mean that you should always have the firm name standing out in big, glaring letters, almost overshadowing all else in your window, but attempt by many ingenious ways to have your displays attract attention to your name, and so associate it with your business in the mind of the onlooker that your name and your business will be like synonyms to him, one recalling the other, and any needs of his in your line of business instinctively, I may say, bringing to his mind your name. Great success depends upon making your name a household word for what you sell. Your show window can aid you in doing this.

As to Prices.

Much has been said by various writers in the journals about attaching prices to the articles displayed. In my experience I have found that while it is wise and necessary to give bargain prices a prominent place in your window this is not true of standard and ruling prices. The latter add no advantage to the soliciting quality of the display and oftentimes satisfy the curiosity of those who would otherwise come in to inquire and perhaps buy.

Practical Demonstrations.

I have used in my business, both in and out of the show windows, a class of display which I would call practical demonstrations. By this I mean a demonstration of the use of articles sold in my store. Such a display serves at the same time not only as a special advertisement of particular wares, but it also brings into general prominence your business as a whole. For a Hardware dealer I have found cooking demonstrations especially adapted and successful, for all the utensils used in cooking are sold by him, from the Stove down to the Frying Pan. During this display in my own store as many as 12,000 ladies passed through my doors within one month, who listened to the lectures on cooking, and to watch the practical demonstrations of it by experienced cooking teachers whom I employed for that purpose.

Another successful example of this class of displays and one which drew large crowds to my store windows consisted in having a man and woman athlete going through physical culture movements on a Whitely Exerciser.

Illuminating the Window.

The progress and the wonderful development in electricity have widened the possibilities of window deco-

rating. The progressive and wide awake merchant keeping pace with the advance of the times has turned this new, great power of light to many advantages in advertising his business. He has used electricity not only for the purpose of illumination, but he has also applied it to the creation of beautiful and striking light and color effects, which cannot fail to attract admiring attention at night. The Garland sign of the Michigan Stove Company, now in my window on Woodward avenue, is an illustration of this class of window display. The illuminated American flag, made of red, white and blue incandescent lamps, displayed in one of my windows some months ago, drew forth many favorable comments.

Keeping Stock in Order.

I notice that the subject assigned to me calls also for my ideas upon the best methods of keeping stock in order. All that can be said upon that branch of my subject is comprehended in this one sound and safe maxim: "Have a place for everything, and have everything in its place." No matter how large or small your store, divide it into departments and have each class of goods in a particular place, where anything belonging to that class may always be found. Have your Cabinet Locks in your Cabinet Lock Department; your Builders' Supplies in your Builders' Hardware Department. Give a select portion of your store to Tacks, Screws, Screw Eyes and the like small stuff. Another to your Cabinet Makers' Tools; another to your Machinists' Tools; another to your Electricians' Tools, and so on.

In the Nail and Bolt Department,

I have found it of great convenience to weigh out each morning a sufficient quantity of the various sizes of Nails into 1, 2, 3, 5, 10 and 20 pound packages. A customer can then be expeditiously supplied with any quantity of Nails up to 100 pounds. This is pleasing to your customer and time saving to yourself. All the broken small stock should be kept in handy drawers, to the outside of which a sample of the contents has been properly attached, so that the looked for article can always be found without delay.

In a Store Where Room is Plentiful,

I should advise that a complete line of Stoves be kept set up for display the whole year around in the same manner as in the exhibition rooms of the large Stove companies. Customers visiting your store in the spring or summer will then have their attention drawn to their fall and winter wants. They will stop to examine and will return to you when they are ready to buy, because they will remember that they have seen in your store what they want.

Inventory Every Month.

A plan that I have found very useful and economic in my own store is to take an inventory of each department every month. This will disclose to you what goods are the most salable and also what class of stock it is desirable for to you dispose of by bargain. It will enable you to know at all times the exact needs of each department, whether it be to supply new stock of staple articles or to dispose quickly of stock which threatens to become a drag on the market.

It is hardly necessary to say that all goods, whether they find a ready sale or not, should be constantly kept in good order, because, no matter how old an article may be, if it is presentable it has a selling value and may be called for by some one sooner or later. "Whatsoever is worth doing at all is worth doing well," is a general rule that has no exceptions. For the merchant to apply this rule with especial force to the proper display of his goods in his show windows, and to the orderly and careful keeping of his stock in his store, is to swing himself onward in a successful career; but it means more than that; it is of greater significance than the individual success of any one man. It means more business, because a good display brings buyers, and buyers make business. More business means more labor. More labor means better wages. Better wages means more clothes and more shoes, with better and healthier bodies inside of them. It means more houses and better fed families occupying them.

It means more schools and wider instruction imparted to the youth that attend them. It means more hospitals and better service to the sick that suffer in them. It means more books and more leisure to read them. It means abundance, prosperity, and the spread of intelligence, the offspring of wages and business; and the progressive merchant, the man who finds the consumer for the producer, who makes a market for the product of labor and manufacture, is the sponsor for all these blessings.

AN IMPOSTOR.

OUR attention has been called to the operations of a fraud, who claims to be the representative or agent in Mexico for a number of manufacturers, chiefly in the Hardware line. His plan is to secure agencies for Mexico, and his contracts call for the advance payment of a small amount of money, usually \$35, "for necessary expenses in sending catalogues, price-lists, &c." He recently visited a well-known Boston house, who, however, failed to fall in with the latter part of the scheme, and the self styled agent left, promising to "correspond with them later." Suspecting the fellow, the house in question took the trouble to write to one of the concerns that he claimed to represent and found that he was an absolute fraud.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

Geo. E. Cook has just opened a general Hardware store at the corner of Stocking and Fifth streets, Grand Rapids, Mich., and will be pleased to receive catalogues, price-lists, &c.

G. W. Hall's Hardware store was among the business houses destroyed in the recent large fire at Rantoul, Ill. Mr. Hall has secured a barn in which he is continuing business, and desires copies of catalogues, price-lists, &c.

TRADE ITEMS.

WORCESTER MAT & BRUSH COMPANY, Worcester, Mass., is the name of a new concern recently incorporated, with \$90,000 capital, with the following officers: W. H. Davis, president; C. H. Raymond, vice-president, and C. R. Macomber, treasurer. They manufacture the Clean-All Bristle Wire Mat and have a capacity of 75,000 to 100,000 Mats a year. E. Voorhees Skillman, 23 Duane street, New York, will sell the goods in various parts of the United States except certain restricted territory in a few of the larger cities, where the goods will be controlled by representative houses. Benjamin S. Newhall, 68 Park place, New York, will cover Geater New York and the export trade. Some of the goods have already been exported to the Philippines and Cuba.

THE business of Jones & Dommersnas, 31-33 Indiana street, Chicago, including all goods, outstanding accounts, good will, &c., has been purchased by the Jones & Dommersnas Company, who will continue the business at the same location as heretofore.

On account of their rapidly enlarging business Barbour Hardware Company, East St. Louis, Ill., have erected a new building, which is referred to as one of the best equipped Hardware stores in the State. The firm have just taken possession of their new quarters.

Browder & Browder have succeeded Phelps & Miller in the retail Hardware, Stove, Tinware, Agricultural Implement and Sporting Goods business in Albion, Neb.

The Olin & Glass Hardware Company are successors to Glass Hardware Company, Glass, Tenn.

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Notes on Foreign Trade

BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE, 1
NORFOLK STREET, LONDON, W. C. 1

The Lamp Season.

WE are fast verging on the Lamp season. In this trade the Germans at the present moment are beating the Americans hands down. To explain this is not so easy. I should say that probably Lamps are one of those trades in which it is not wise to make the whole Lamp from beginning to end. The most successful firm of Lamp sellers in this country are Falk, Stadelmann & Co., who are not strictly Lamp manufacturers, but who none the less contrive to undersell every other Lamp firm so far as I know, and manage to do well on it. I imagine the reason for this is that although not strictly Lamp manufacturers, the various parts of their Lamps are bought from different sources, each part at a distinct advantage. I believe that the head of each department of Falk, Stadelmann & Co. is given *carte blanche* to buy the component part belonging to his section, the assembling of the parts afterward being a comparatively easy matter. If any American exporter wants to capture the English trade in Lamps, he has got to beat Falk, Stadelmann & Co., and it wants some doing. The number of new designs on the market this year is less than ever before, but trade prospects are not considered to be brilliant, although already several good orders for the autumn trade have been received.

The New German Tariff.

On the whole, the new German tariff bill will not affect to any extent the Hardware and metal trades. The following table will show the proposed tariff compared with the present tariff, set out in marks per 100 kg. A mark is about 25 cents, and 100 kg. is equal to 2 cwt.

	Proposed tariff.	Present tariff. Special rate.	Treaty rate.
Pig Iron.....	1	1	...
Bar Iron in weight of 1 kg. or over per meter.....	2.50	2.50	2.50
Bar Iron in weight of less than 1 kg. per meter.....	3	2.50	2.50
Bar Iron in pieces not over 12 cm. long for remelting.....	1	2.50	1.50
Sheet Metal, according to the thickness of more than 1 mm., 0.5 to 1 mm., 0.5 mm. and under.....	3, 4.50, 5	3-5	3-5
Raw, and also Stamped Sheets...	5, 5.50, 6	5	5
Polished Tin Plate.....	5, 5.50, 6	5	5
Wire, rolled or drawn, accord- ing to the thickness of 1.5 mm. or over; less than 1.5 mm. to 0.5 mm.; less than 0.5 mm. unfinished.....	3, 3.50, 5	...	...
Wire, rolled, finished.....	3.50, 4.50, 6	...	...
Cycle parts in Iron, unfinished	40	...	24
Cycle parts in Iron, finished..	1.50	...	24
Steel Bars.....	2.50	...	2.50
Railway Rails.....	2.50	...	...
Saws, Circular and Hand.....	20	...	5
Other Saws, Hand Saws.....	15	...	...
Files, not exceeding 16 cm. in length.....	40	...	...
Files, 16-35 cm. in length....	25	...	...
Files, over 35 cm. in length...	10	...	...
Domestic and Kitchen Utensils of copper, not nicked or polished.....	24	...	...
Domestic and Kitchen Utensils of copper, polished.....	36	...	...
Common copper goods and Tubes.....	18	...	...
Other copper wares, unenumer- ated.....	30	...	...
Electric Cables.....	8	...	...
Arc Lamps.....	40	...	...
Cycles, complete.....	150	24	...

Testing Agricultural Instruments in Russia.

It is stated that the Imperial Russian Agricultural Association has established, on its model farm near Moscow, a depot for testing agricultural machinery and implements, in order to learn which are the most suitable for Russian farm use. Manufacturers who wish to enter their machines for these tests are required to pay from 500 to 1000 roubles, say \$250 to \$500. This fee entitles them to enter all their machines for a period of three years, and, in addition, to a space of 375 to 750 square feet in the exhibition building at the farm. The results of the tests will be made public, and the cost of

printing and other outlays will be defrayed by the association, which will also bear the expenses incurred in

taking care of the machines and their insurance against fire. Applications for entry should be addressed to Prince Alexander Scherbatooff, president of the association, Moscow.

Wanted—Guns.

Manufacturers of Rifles will be interested to know that the present King of Italy has recently witnessed a number of experimental tests of a new Rifle, fashioned by a captain of Bersaglieri, which is now admitted to be superior in every way. The result of this will be a large order for a Rifle made after this pattern, and there is no reason why American makers should not be in it. It is stated that the whole of the Italian army is going to be rearmed with this weapon. Its mechanism appears to be very similar to the British Lee-Enfield.

Anglo-French Trade.

The annual report of the British Chamber of Commerce in Paris states that, despite the fact that the general trade of France shows, on both the import and export sides, a decrease in comparison with the figures of 1899, Anglo-French trade was more active in 1900 than in the preceding year, especially as regards importation of British goods into France. The Exhibition of 1900 does not seem to have had much influence upon the normal course of French trade. Subsidiary industries may have benefited by it, but increases and decreases in staple articles of import and export may be traced to quite other causes. The total imports into France from all parts amounted to 4,408,530,000 francs, a decrease of 109,778,000 francs on 1899, when they amounted to 4,518,308,000 francs, and of 64,002,000 francs on 1898, when they amounted to 4,472,532,000 francs. Apart from this the 1900 total is higher than in any other year since the 1892 tariff. The imports from England form 13.8 per cent. of this total, and amount to 609,228,000 francs, an increase of 18,361,400 francs on the figures of 1899, which stood at 590,866,600 francs, and of 103,597,777 francs on the figures of 1898, which stood at 505,630,223 francs. The total exports from France, on the other hand, amounted to 4,078,032,000 francs, being a decrease of 74,603,000 francs on 1899, when they stood at 4,152,635,000 francs, but otherwise higher than in any year since 1870. The exports to Great Britain amounted to 30.4 per cent. of the total, being 1,238,839,000 francs, as against 1,238,852,000 francs in 1899, or a slight decrease of 13,000 francs, but also, like the total exports of France, otherwise higher than in any of the last 30 years. Great Britain still heads the list as the chief supplier of France, but she is now closely followed by Germany, which during the last few years has overstepped Belgium. While Great Britain increased her export to France by 18 1/3 million francs in 1900, Germany increased hers by 51 1/4 and Belgium by 56 1/2 per cent. The increase of 32 1/2 millions in the French imports from the United States is also noteworthy. The Americans now come second only to the English as suppliers of goods to France. On the export side, Great Britain is easily first as the best market for France, and there does not seem to be much emulation among other countries to dispute her title.

TRADE IN ENGLAND.

FROM A SPECIAL CORRESPONDENT.

DIRECT TRADING.—The unfairness of what is called "direct trading" is just now occupying the keen attention of the Federation of British Ironmongers, and it certainly is most unfair that having sold goods to the business retailer the manufacturer should seek also to supply his customers' customers. In the English Hardware papers are to be seen the advertisements of firms who in the "lay" press make insinuations of extortion on the part of the "middlemen," the very ones they supply! Mostly the game is carried on in an underhand way, however, and a specimen of this particular form of play has just been told. One of the members of a

firm of furnishers had an addition to his family, and announced the interesting event in the *Times*. Immediately he was besieged with offers from manufacturers to supply goods of various sorts coming within the scope of an ironmonger's business. A trade discount was offered as an inducement. Two of the firms actually did business with the writer and were supposed to be very much opposed to "direct trading." But their action has belied their words and the accounts have been closed.

TAKING FRENCH LEAVE.—One of the greatest annoyances which British employers suffer is the leaving without notice of their work people. Sometimes, it being part of a prearranged plan, the engineer and fireman of a small works will suddenly leave and the utmost inconvenience be caused. But a change is coming and of late many of these breakers of what they have known to be, at any rate, moral obligations, have been proceeded against in courts of law. An ironmonger at Milford has just sued one of his former workmen for failing to give him a week's notice. After hearing the evidence the judge of the County Court said it was too bad of people to leave their employers in the lurch, and he would make the defendant pay damages and costs.

GRIFFIN MFG. COMPANY'S NEW PLANT.

THE GRIFFIN MFG. COMPANY, formerly of Allegheny, have purchased the F. F. Adams plant in Erie, Pa., to which they are building additions which will give them upward of 80,000 square feet of floor space, with about 2 acres of vacant ground. They expect to be in operation in the new location by August 20, and will then have, we are advised, one of the largest and most modern plants for producing steel goods. Their shipping facilities will also be excellent, the factory being so arranged that raw material will be received from cars at one end, the finished goods being loaded at the other end in cars on siding connected with all roads entering Erie. Water transportation will secure low rates to all lake cities. Besides the goods formerly manufactured the company will add some new lines, which they have been prevented from making heretofore on account of lack of room. They state that they are filling orders promptly from stock and expect to take care of the requirements of their customers without any delay.

JANESVILLE HAY TOOL COMPANY.

THE JANESVILLE HAY TOOL COMPANY, who have for a long time been manufacturing Hay Tools at Janesville, Wis., are changing the seat of their manufacturing operations to Chicago. The change has been made to secure better shipping facilities and the concentration of the business interests of the principal owners of the company, who live in Chicago. The company were pioneers in the manufacture of hay handling and carrying appliances and have been conspicuously successful in creating a business in this line. They have just closed the most successful year in their history. As their business is now much larger and more satisfactory than ever before, they feel justified in seeking a more central location and in making greater efforts to increase the use of their appliances than they have been able to do heretofore. The office of the company will be located at 122 Lake street, Chicago.

N. B. GASTON'S SONS COMPANY.

N. B. GASTON & SONS, Beloit, Wis., incorporated their business on the 20th ult. under the style of N. B. Gaston's Sons Company, who will continue the manufacture of Scales, &c., as heretofore. They have just issued a new catalogue of 40 pages, in which their line of Platform, Wagon, Dump, Family, Folding and Creamery Folding Scales and Patent Bevel Face Hand and Power Paint Mills are illustrated and described.

Gensman Bros.' Hardware store in Enid, Okla., was badly damaged by fire a short time since. The firm are rebuilding the store.

AMONG THE HARDWARE TRADE.

On the 14th ult. T. P. Olmsted, Wayne, Neb., sustained a loss of \$1200 by fire in his Iron ware room. The loss was fully covered by insurance.

E. K. Anderson has purchased the Hardware stock formerly owned by Roblison & Co., High Springs, Fla.

Fletcher Hardware Company, wholesale Hardware, Stoves, Agricultural Implements, Sporting Goods, &c., Detroit, Mich., have increased their capital stock from \$159,000 to \$200,000. The company refer to business this year as exceeding that of any previous year in their history. Seneca G. Lewis, manager of the Sporting Goods department, and Robert Shields are now stockholders in the company.

D. D. Cottrell has purchased the Hardware business of Fred Bloss, Aurora, Ill. This stock will be materially increased and then moved to some point not yet determined in Oklahoma.

C. F. Thompson, Redwood Falls, Minn., has disposed of his Hardware, Stove, Sporting Goods and Plumbing business to E. A. Pease, who will continue at the old stand.

J. F. Horn is successor to E. T. Booher in the Hardware, Stove, Tinware and Agricultural Implement business in Jerico, Mo.

Win. H. Pollard has bought the Hardware and Stove business at Whittier, Iowa, formerly conducted by H. H. Mount.

Wadleigh & Fundis have succeeded Dorner & Wadleigh in the Hardware, Stove, Farm Implement and Sporting Goods business in Centralia, Kan.

Fuss & Harrison have lately engaged in the Hardware, Tinware and Agricultural Implement business in Perth, Kan. In the fall they are expecting to add the sale of Stoves, Lumber, Coal and Grain.

E. Simon has purchased the business of E. M. Price & Co., Brookhaven, Miss., and will continue it under the same style for the present.

F. D. Ross, retailer of Hardware, Stoves, Tinware, Agricultural Implements, &c., New Orleans, La., has been succeeded by F. D. Ross & Co.

James H. Johnston, Hardware, Plumbing, &c., Washington, N. J., has just opened branch shops in Stewartsville, under the management of Fred. Boyd, and at Oxford under the management of Albert Major.

The Quitman Mercantile Company, Quitman, Ga., have lately engaged in business, carrying a complete line of Farmers' Supplies, Groceries, &c. The firm consist of B. E. Mabbett and C. T. Tillman.

Drake Hardware Company, wholesale Hardware, &c., Burlington, Iowa, have a new building in course of erection. The building will be of brick, three stories and a basement, fronting on two streets and forming an L. The main building will have a frontage of 58 feet on Washington street by 120 feet deep; the annex, or Front street building, a frontage of 45 feet, with side track, and 110 feet deep. The basement will be used for heavy goods, as will also the first floor of annex. The offices and sample room will be on first floor of main building on Washington street. Shelf goods will be accommodated on second floor. A box chute will be constructed so as to land all goods from packing room to first floor near shipping doors in rear of both buildings. A chute will also be constructed for delivery of goods from cars into basement. The building will be equipped with hydraulic elevators and all modern conveniences, and is being constructed with a view to facilitate the handling of goods so that prompt shipment can be made of all orders. The location is convenient to all freight depots

and boat landings. The building is expected to be ready for occupancy by November 15 next.

Marvin D. Boland has purchased an interest in the business of Hood, Clelland & Co., general Hardware merchants, Fairmont, W. Va.

B. G. Sweet & Bro. have succeeded W. A. McIntosh & Co., dealers in Hardware, Wagons, Buggies, Agricultural Implements, &c., Brownwood, Texas.

Davis, Hunt & Collister, Cleveland, Ohio, have incorporated their business under the style of the Davis, Hunt & Collister Company, with a capital of \$65,000. The officers of the corporation are: E. P. Hunt, president; J. H. Collister, vice-president and treasurer, and E. L. Davis, secretary. The company do a wholesale and retail business in Hardware, Stoves, Tinware, Agricultural Implements, Sporting Goods, &c.

MISCELLANEOUS NOTES.

Cylinder Front Door Lock with Reversible Latch Bolt.

Russell & Erwin Mfg. Company, New Britain, Conn., and 43-47 Chambers street, New York, have put on the market a rapid mortise easy spring cylinder lock with pin tumblers. The main characteristic of this lock is the ease with which the bevel can be reversed. To change the hand of the lock the cap is removed, the position of cylinder and thumb piece hub transposed, and latch and latch hub turned. To make reverse bevel caps the latch and latch hub is turned over, without changing the positions of cylinder and thumb piece hub. The cylinders are adjustable for four sizes of doors, ranging from 1½ to 3½ inches thick. The front door locks are furnished with three gold plated German silver keys.

T-Handle Mortise Door Bolt

Russell & Erwin Mfg. Company, New Britain, Conn., and 43-47 Chambers street, New York, have just added to their line of builders' hardware a T-handle mortise door bolt. It is about ½ inch in diameter, with round bronze metal barrel, and has a T-handle fluted spindle which engages the cogs in barrel for moving the bolt backward and forward. There is no spring, and it is made with and without bronze face plate. The bronze metal strike has their rapid mortise feature on strike and otherwise is similar in appearance to the face plate.

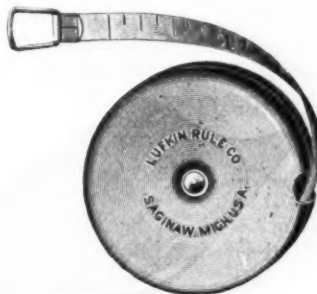
Steel Edge Plated Knife.

The Meriden Cutlery Company, Meriden, Conn., are offering the knife shown herewith. It is made of German silver, with a steel edge inserted, which is referred to as making the knife more durable. The envelope of silver, it is remarked, covers the whole knife, except for a short distance from the edge, thus overcoming the usual objection to a plated knife—that it cannot be sharpened. The knife is furnished in any pattern of plated blades in the company's entire line.

Pocket Linen Tapes.

The Lufkin Rule Company, Saginaw, Mich., and 280 Broadway, New York, have recently added to their ex-

having a spring wind and center stop. They are put together with a screw and can be readily taken apart and reassembled if necessary. The mechanism is entirely new, simple, durable and not likely to get out of order. The tape itself is of pure linen, heavily coated with water proof enamel. One group, with ¼-inch tape, is made in 36, 60 and 72 inch lengths. Another group, with 5-16-inch tape, can be furnished in 36, 60, 72 and 96 inch lengths,

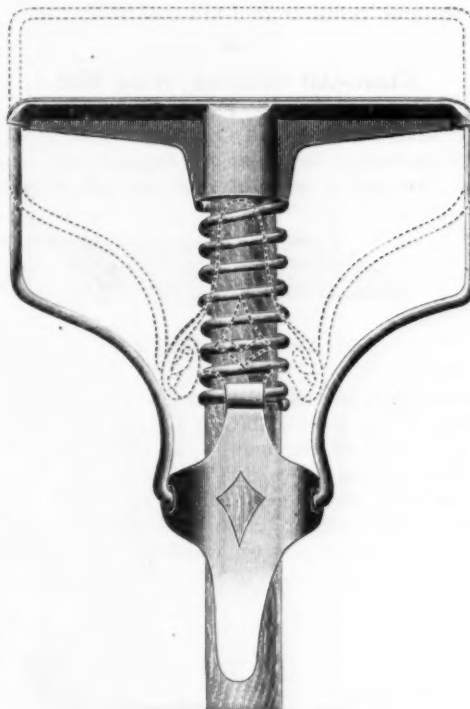


Pocket Linen Tape.

both styles being marked on one side in inches and eighths. The sizes of the cases are ¾ x 1¾, 1½, 1¾ and 2 inches, respectively. They are put up six of a size in a neat pasteboard box.

The Gem Mop Head.

The Arcade Mfg. Company, Freeport, Ill., are bringing out the new mop head which is here illustrated. This device has an ingenious arrangement for firmly



The Gem Mop Head.

holding the cloth. The illustration shows the mop head in position for operation. The dotted lines show the position of the wire frame when holding the mop head opened for the purpose of inserting or removing the cloth. The



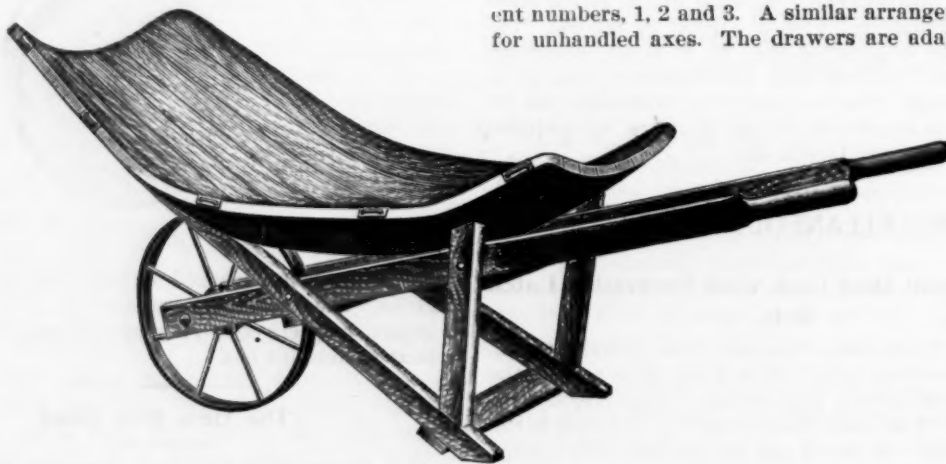
Steel Edge Plated Knife.

tensive line of measuring tapes (which includes also 18 sizes and styles of pocket steel tapes) two series of pocket linen tapes, as here illustrated. One of the peculiarities of the goods is the construction of the cases, which are made of polished and nicked brass with rounded edges,

wire frame is operated by means of a lever made of sheet steel, held in position by a coil spring to which one end of it is attached. This adjustment is operated freely, making the mop head, it is remarked, neat, simple, compact and reliable in action.

The Jumbo Wheelbarrow.

The accompanying illustration shows the Jumbo wheelbarrow, which is a new pattern that has been placed on the market by the Puffer-Hubbard Mfg. Company, Minneapolis, Minn. The tray is extra large, being 4 feet long, 32 inches wide and having an extreme depth of 6 inches, so that it contains about 6 cubic feet. The width of the tray permits the barrow to pass easily through an ordinary door. The barrow is made from selected hard wood, properly bolted and braced, and is equipped with a 16-inch metallic wheel. The wheelbar-



The Jumbo Wheelbarrow.

row is designed specially for carrying light and bulky loads, the load being carried far over the wheel.

Clean-All Bristled Wire Mat.

Worcester Mat & Brush Company, Worcester, Mass., are manufacturing the Clean-All bristled wire mat, here shown. The mat is made of 14-gauge steel wire, highly



Fig. 1.—Bristled Wire Mat.

carbonized, and galvanized before weaving. The weave is oblong, which gives a flat laying and flat wiping surface. The edge of the mat is strengthened with a 1/4-inch wire rod frame work. The mats are made both plain and with brush attachment, the latter shown in the cuts. This form of brush is designed to remove all soil and dirt that otherwise would not be reached, and is so made that the board in which the brushes are held

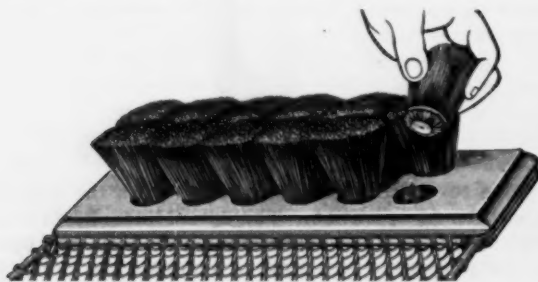


Fig. 2.—Manner of Renewing Bristled Attachment.

by winged screws with flat nail heads can be instantly removed for special cleaning whenever necessary, there being in one end of the grooved board a concealed flat curved steel spring. The composite brushes are made of hog bristles, Kitool, Palmyra and Tampico, a mixture especially selected to resist the action of water and snow. Especial attention is called to the sanitary qualities of the mat and the ease with which it can be kept clean and free from disease germs. The mat can be supplied regularly in five sizes, all 16 inches wide and

12, 18, 24, 30 and 36 inches long. Special sizes and shapes can be furnished to order from any size of steel, galvanized, tinned, brass or copper wire of any mesh adapted to any place where mats are required.

Convenient Store Fixtures.

The accompanying cuts relate to store fixtures, recently brought out by the J. D. Warren Mfg. Company, Chicago, Ill. In Fig. 1 is shown glass front drawers, arranged for displaying a sample of each pattern of hatchet. Each drawer is correctly divided for the different numbers, 1, 2 and 3. A similar arrangement is made for unhandled axes. The drawers are adapted in height

and width to the size of the axes, each drawer containing one dozen assorted sizes.

The cabinet shown in Fig. 2, designed for surplus stock, has paneled drop leaves. The compartments



Fig. 1.—Hatchets in Glass Front Drawers.

should be numbered consecutively and the corresponding number marked on the side of the drawer from which the goods are retailed. This arrangement enables even inexperienced clerks to find the surplus stock with-



Fig. 2.—Drop Leaf Storage Cabinet.

out assistance. The number can also be entered in the index of any hardware catalogue, opposite the name of the indexed article, thus enabling the manager at his desk to tell where any article is—both the drawer and surplus stock.